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ABSTRACT

The study described in this report examined the direct economic impact of Brookdale Community College (BCC) on Monmouth County and the economic impact of the state community college system on New Jersey. Chapter 1 reviews the background and significance of economic impact studies; discusses the issue from general, New Jersey, and BCC perspectives; highlights research questions; defines terms; and outlines the assumptions and limitations of the study. Chapter 2 presents a literature review, including case studies and an examination of the historical and theoretical bases of economic impact studies. Chapter 3 discusses study methodology, focusing on project management, development, and implementation; research issues and questions; and study chronology. Chapter 4 presents findings within six subcategories: development of the survey; determination of the multiplier for calculating the indirect impact of each dollar spent; research questions; utilization of results; production of an economic impact study handbook; and project evaluation. Chapter 5 provides an interpretation of results within each of the same subcategories, conclusions, and recommendations. The direct economic impact survey is appended. (HB)

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**The Direct Economic Impact of
New Jersey's Community Colleges**

Gordon Jeremiah Ryan

**A MAJOR APPLIED RESEARCH PROJECT PRESENTED
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF EDUCATION**

NOVA UNIVERSITY

1983

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Lastly, but most importantly, this Major Applied Research Project is dedicated to the real driving force behind its completion: My wife and best friend, Gail.

Abstract of a Major Applied Research Project
Presented to Nova University in Partial Fulfillment of the
Requirements for the Degree of Doctor of Education

THE DIRECT ECONOMIC IMPACT OF
NEW JERSEY'S COMMUNITY COLLEGES

by

Gordon Jeremiah Ryan

April, 1983

This Major Applied Research Project was developmental in nature. The emphasis was on the development, implementation and evaluation of three products: a local economic impact model; a statewide economic impact statement; and a handbook to assist campus personnel in local economic impact calculations.

This project also addressed the following research questions:

1. What economic impact does Brookdale Community College have on Monmouth County?
2. Is Brookdale's economic impact on Monmouth County different than the impact other New Jersey community colleges have on their counties?
3. What is the economic impact of the community college system on the State of New Jersey?

The project was conducted as follows:

1. A survey was developed and distributed with the assistance of appropriate committees of the Council of County Colleges of New

Jersey and statewide associations of business officers and research administrators. The survey was field tested prior to distribution to all colleges.

2. Local economic impacts and statewide economic impact were estimated by the completion of the survey by each of New Jersey's community colleges and the application of appropriate economic multipliers.

3. Each community college provided its local economic impact data to its county government as part of the local Fiscal Year 1984 budget process.

4. A statewide economic impact statement was presented to the Joint Appropriations Committee of the State Legislature as part of the State Fiscal Year 1984 budget process.

The completion of this Major Applied Research Project produced significant benefits for Brookdale, for the other New Jersey Community Colleges, and for the system of community colleges in New Jersey. The completed objectives of this project were as follows:

1. For Brookdale, an economic impact study was produced that assisted the College in its efforts to obtain more appropriations from the Monmouth County Board of Freeholders.

2. For Sixteen of Brookdale's sister institutions, a simplified model for calculating local economic impact was made available. When implemented, the model produced information that assisted each college in its efforts to obtain a greater amount of appropriations from its County Board of Freeholders.

3. For the system of New Jersey community colleges, a state-wide economic impact statement was produced. This statement was utilized by the Association of County Community College Presidents and the Council of County Colleges in their efforts to obtain an increase in state appropriations for community colleges. The statement was produced in time for use in public testimony before the State Legislature's Joint Appropriations Committee in regards to the FY1984 State of New Jersey Budget.

4. For future production of economic impact statements, a Handbook was produced that will serve as a guide for the specific calculations for each element of an economic impact statement.

5. The existence of the economic impact model, and the Handbook, will make it possible for New Jersey's community colleges to conduct economic impact studies on an annual basis. Consequently, the colleges will be able to analyze changes in impact over time and attempt to determine the causes of such changes. Important variables, if identified as causes of change, can then be emphasized or de-emphasized, whichever is appropriate.

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CHAPTER ONE

Introduction

Mission and goal statements of community colleges have a common thread in that they invariably state that the primary purpose of community colleges is to provide postsecondary educational opportunities to the adult population of the colleges' sponsorship areas. The statements usually include listings of such valuable outcomes of learning as knowledge, creative capabilities, economic productivity and cultural enrichment.

As outcomes actually occur, community colleges may have substantial effects on the communities in which they are located. They may provide business and governments in the area with a well trained labor force. They may generate the technical expertise that is often required in modern times to perform required technical studies for local businesses or governments. They may also vastly broaden a community's cultural resources.

All of these outcomes are highly relevant in any attempt to measure the overall impact of a community college on the community in which it exists. A comprehensive study of all of these effects would be a monumental work entailing sociological, political, and historical analyses of both college and community. When completed, the study of these outcomes could not be presented in cold simple arithmetic terms showing costs and benefits on opposing sides of the

ledger. The net contribution of the community college to its community would still be largely a matter of judgment.

The foregoing list of outcomes may be described accurately as long term benefits because they add value to the community and because they are intangible. There are long term money-related benefits as well, such as higher salaries, higher productivity, higher spending, and additional tax revenues. These outcomes, although difficult to measure, assist in the accomplishment of such community college missions as better social and economic climate and individual mobility and job security.

There are other outcomes of community colleges, usually not presented in the mission statement, that are more direct and more measurable, one of the most significant of which is that they bring revenue to their locality. Community colleges serve as substantial producers of jobs, as consumers of goods and services, as owners of property and as depositors and investors of cash resources that contribute to an expanding credit base.

The people who live in the area in which a college is located often think of the institution in terms of their own personal social interactions with its students. Merchants, landlords, bankers and other business persons may be sensitive to the students and college employees as sources of additional income for their business venture. However, the total economic relationship between the college and the community is not generally known.

The second set of outcomes presented are more current and short term, their benefits are measurable. Community colleges bring funds into the economy through several revenue sources: tuition and fees, local and state appropriations, private gifts, and federal grants.

The colleges circulate funds into the economy through expenditures: salary payments, purchases of goods and services, and capital construction. The ability to accurately measure, analyze, and present these economic outcomes is becoming an ever more important skill for a community college president, business officer, or research administrator.

Background and Significance

Today, the economy is unpredictable, many governmental resources are becoming scarce, and enrollments are stabilizing or declining. In the 1980s, the achievement of a community college's mission and goals (long term benefits) may depend on the ability of the college administrators to accurately state its current economic impact (short term economic benefit).

Economic impact statements, prepared in a careful, thorough and systematic manner, are becoming a necessary weapon in the college arsenal as it does battle with legislators over public appropriations. Yet, up to this point in time, only two economic impact studies have been conducted at New Jersey's community colleges. A statewide study of economic impact has never been

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attempted. Campus administrators have repeatedly complained about the complexity and time consuming nature of the dominant economic impact study models produced by Caffrey and Isaacs in 1971.

The General Perspective

Arguments by college officials about the successful production of outcomes by their colleges have begun to fall on deaf ears in local and state legislative chambers. Howard Bowen, a noted economist, has argued that colleges must change their approach and that they have

clear responsibility to operate efficiently and to report costs and results to the American people in ways that transcend the tired rhetoric of commencement speeches and slick brochures (Bowen, 1977).

One possible tactic to deal with the appropriation problem is to set aside an examination of the social values of education for a more direct approach, a look strictly at an operating system's impact on the economy. If the system carries its own weight financially, if the return is at least as great as the investment the taxpayers make, positive value is evident (Jackson, 1978). In fact, one author has stated that there are at least six positive economic benefits that community colleges contribute to their local economies: Colleges contribute to an increase in technical skills and income of students, with accompanying increases in spending in local businesses; colleges help reduce costs to local businesses via the availability of a skilled labor force; the local economy is assisted by college and staff

expenditures and bank deposits in local businesses; colleges provide local residents with cultural services at reduced costs; local business revenue is generated by college activities and programs; and property values are enhanced by the presence of the college (Phillips, 1977).

The interaction of the economy and higher education has been in evidence since the early establishment of colleges and universities in the United States. In relatively recent years, there has been sharpened recognition and improved understanding of this interdependence (Pennsylvania Economic League, 1981).

Educators and economists have been measuring the economic impact of colleges for about twenty years. In essence, they have treated colleges as business enterprises, excluding the long term educational benefits of their existence and measuring the current direct economic contribution to the community. Community colleges have been the focus of much of this activity.

Economic impact studies are attempts to measure the circulation of college expenditures in the local economy (see Figure 1). The studies measure employment, business volume, tax revenues, bank credit and personal income, and state and federal revenues. They also employ multipliers to more accurately measure cash flow.

An economic impact study enables a community college to improve its position with its funding sources. Community and college relations are documented. Political leaders are made aware of the

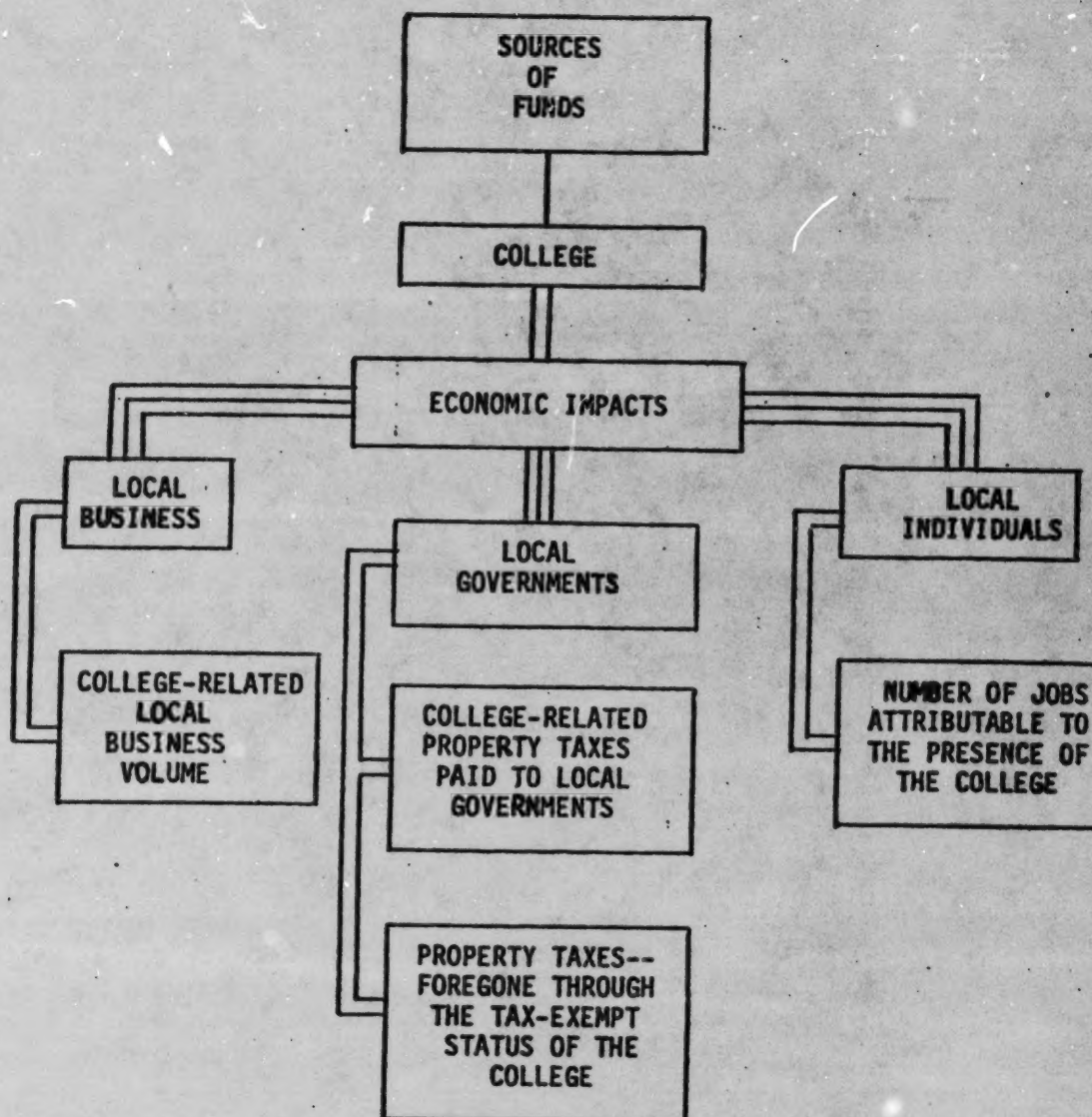


Figure 1

Economic Impact Study Model

Source: Stanley Baum. The Economic Impact of Mercer County Community College on the Local Community. (Trenton, N.J.: Mercer County Community College)

tax burden eased and tax revenues generated. Faculty and staff become more aware of their contribution to the economy. Taxpayers see that their outlay does not just disappear and college administrators have a useful tool in making decisions about the future direction and priorities of their institutions (Linthicum, 1978b).

Economic impact studies are of substantial value to administrators and faculty at community colleges because they provide comprehensive data for political purposes. Without them, endeavors to achieve greater local and state appropriations will be handicapped by the lack of tangible and reliable information on the measurable economic returns to be expected from the dollars invested in community colleges. The results of economic impact studies often are surprising to the public and, indeed, to the academic community in terms of the prominent economic status of the college as an employer, consumer of goods and services, investor and property owner.

New Jersey Perspective

The community college picture in New Jersey mirrors that in the rest of the nation. Sector-wide enrollments continue to creep upward as public appropriations remain constant. State appropriations increased only five percent in FY1982 and not at all in FY1983. In fact, state appropriations per full time equivalent community college student have steadily decreased over the past five years because

enrollments have surpassed the number funded by the State. The "budgeted" full time equivalent figure has remained almost constant for community colleges for many years while other sectors have made substantial gains (Table 1).

The counties that sponsor community colleges are pushed to the limit by state and federal mandated programs. In addition, New Jersey has a statutory five percent cap on annual increases in expenditures. Yet, the county governments have been able to give the colleges acceptable increases (Table 2).

With the economy as unpredictable as it is today, and with the current negative attitude toward new taxes, community colleges will certainly not have as easy a time in the future with their county sponsors. Economic impact arguments will become more necessary.

New Jersey public officials appear to be receptive to these economic impact arguments. New Jersey state and local governments are busy trying to improve tax structures, transportation systems and marketing approaches in attempts to keep the businesses they have while becoming more attractive to new enterprises. Community college administrators need to formulate economic arguments in a more systematic manner.

Table 1
A Comparison of Budgeted State Support
for Public Institutions of Higher
Education in New Jersey

Institutional Support for Full Time Equivalent Students				
Fiscal Year	New Jersey Institute of Technology	Rutgers University	State Colleges (8)	Community Colleges (18)
1967				
1968	\$1,158	\$1,259	\$ 769	\$600
1969	1,388	1,439	822	600
1970	1,601	1,613	858	600
1971	1,752	1,682	916	600
1972	2,045	1,762	916	600
1973	2,183	1,673	1,055	600
1974	2,286	1,758	1,048	650
1975	2,403	1,908	1,175	600
1976	2,438	1,982	1,137	600
1977	2,492	1,942	1,079	600
1978	1,864	2,276	1,471	700
1979	3,270	2,447	1,696	700
1980	3,564	2,647	1,795	725
1981	3,713	2,876	2,008	725
1982	3,668	3,060	2,162	765
1983	3,922	3,311	2,317	725
Sixteen Year Percentage Increase	239%	163%	201%	21%

Table 2

Summary of Changes in County Support
to Community Colleges in New Jersey

Fiscal Year	County Appropriations	
	(\$000)	% of Change
1977	42,151	
1978	43,021	2.1
1979	47,259	5.7
1980	49,970	9.5
1981	54,731	9.5
1982	60,898	11.1
1983	66,140	8.7

The Brookdale Perspective

Brookdale Community College is the largest community college in New Jersey with 12,533 students and a budget over \$17 million. Size has not helped Brookdale attract the necessary appropriations to maintain a quality academic and community service program. Brookdale's current sources of revenue are depicted in Table 3 which follows:

Table 3
Brookdale Community College
Fiscal Year 1983 Revenues

Fund Category	Revenue	%
Tuition	\$ 4,956,322	28.2
Fees	390,000	2.2
State Aid	4,985,670	28.4
County	5,684,898	32.4
Other Incomes	1,025,000	5.9
Reserves	501,564	2.9
TOTAL	\$17,543,454	100.0%

In a speech to the College community on September 24, 1982, Brookdale President B. A. Barringer announced that Brookdale's FY1983 revenue forecasts included three troubling items: another substantial

tuition increase; an extraordinary increase in county funding; and no increase in state appropriations.

Barringer proposed the concept of state and local economic impact statements to the New Jersey Association of County Community College Presidents because of enlightened self-interest. The preparation of a local statement would help him convince the Monmouth County Board of Freeholders to give Brookdale the unprecedented increase it needed. The preparation of a statewide study would help the case for more state appropriations which, if granted, would enable Brookdale to roll back some of the tuition increase and ask the county for less.

Significance of the Project

The completion of the proposed Major Applied Research Project produced significant benefits for Brookdale, for the other New Jersey Community Colleges, and for the system of community colleges in New Jersey. The objectives of this proposed project were as follows:

1. For Brookdale, an economic impact study was produced that assisted the College in its efforts to obtain more appropriations from the Monmouth County Board of Freeholders.
2. For Brookdale's sister institutions, a model for calculating local economic impact was made available. When implemented, the model produced information that assisted each college in its efforts to obtain a greater amount of appropriations from its County Board of Freeholders.

3. For the system of New Jersey community colleges, a state-wide economic impact statement was produced. This statement was utilized by the Association of County Community College Presidents and the Council of County Colleges in their successful efforts to obtain an increase of \$3.5 million in state appropriations for community colleges. The statement was produced in time for use in public testimony before the State Legislature's Joint Appropriations Committee in regards to the FY1984 State of New Jersey budget.

4. For future production of economic impact statements, a Handbook was produced that serves as a guide for the specific calculations for each element of an economic impact statement.

Research Questions

Fundamental to this Major Applied Research Project is the theory that for each dollar spent for goods, services, and salaries by an institution or business, there will be many who benefit directly or indirectly from the original expenditure. For example, if a college buys equipment for a classroom, a salesman receives a commission; the manufacturer benefits; and, indirectly, the producers of iron, wood, plastics, and other materials used in the equipment realize a profit from the money spent for the finished product.

The benefits of additional money in a county are many and varied. In the case of a community college, the money paid as salaries may be spent locally for rent, mortgage payments, groceries, services, other goods or placed in savings. Although the general thought is that

merchants and bankers are the beneficiaries, many others receive benefits also. The money deposited in both savings and checking accounts allows the bank to make more money available to people to finance homes, cars, and other large-cost items. Increased values and new properties increase the tax revenue and broaden the base for local government services.

The presence of the community college, in considering the total economic relationship with the surrounding community, also results in some perceived disadvantages. Fire and police protection, road maintenance, and valuable land off the tax rolls are only a few of the costs local government provide. Additional people in an area create a need for new housing, but the additional children may create an added burden for the local schools.

This Major Applied Research Project was designed to address the following seven research issues and questions:

1. What elements of an economic impact study are essential if the economic impact statement that results from the study is to be read and comprehended by State legislators and bureaucrats?
2. What elements of an economic impact study are most useful to community college officials as they use the statement that results from the study to influence their county government?
3. What institutional and government data can be used to substitute for economic impact survey responses?
4. What multiplier effect should be applied in each county and for the entire State of New Jersey?

5. What economic impact does Brookdale Community College have on Monmouth County?

6. Is Brookdale's economic impact on Monmouth County different than the impact other New Jersey community colleges have on their counties?

7. What is the economic impact of the community college system on the State of New Jersey?

Definition of Terms

The terms defined below are important to the understanding of the concepts and the data presented in Chapters Two, Three and Four.

College-Related Local Expenditures. Expenditures by the college as an institution, by faculty and staff, by students and by visitors.

Second Round Local Expenditures. The additional volume of local business activity resulting from stimuli provided by the purchases of goods and services.

Value of Local Business Property. Capital and property related to the business activity generated by the presence of a college.

Expansion of the Local Credit Base of Local Banks. A secondary effect resulting from the deposits and other bank activity of a college and its associated personnel.

Unrealized Local Business Volume. Business activity conducted by a college directly comparable to and competitive with businesses that exist in the community, such as cafeterias, book stores and film series.

College-Related Revenues Received by Local Governments. Annual tax receipts, state aid and other local government receipts derived from the college and from college-related persons and business activities.

College-Related Real-Estate Taxes. Annual payment of real-estate taxes to local governments by a college, by faculty and staff, by students, and by businesses for real property allocable to college-related business.

Direct Economic Impact. The first round immediate effect of a college on local business volume.

Indirect Economic Impact. The effect of a college on local business volume after the immediate expenditure.

Multiplier Effect. The recycling process, of a dollar of expenditure, through the economy.

County College. The statutory term for a public community college in New Jersey.

Purchases Locally by Local Businesses. Purchases in support of their college-related business refers to business caused by college expenditures beyond what would be normal.

Local Business Volume. Business volume stimulated by college-related income refers to expenditures by local individuals (other than faculty, staff, or students) and which were made possible by original expenditures of the college.

Value of Business Inventory. Inventory committed to college-related business; computed by multiplying the college-related local business volume times a locally used inventory-to-business volume ratio which is provided by Caffrey and Isaacs.

Number of Jobs Attributable to the College-Related Local Expenditures. A measure computed by totaling the college-related local expenditures and operating costs of local governments and multiplying this total expenditure by .00007, a coefficient representing the number of jobs per dollar expenditure. Caffrey and Isaacs suggest a range from .00007 to .00009; and as in similar situations in this study, the conservative figure should be used.

Personal Income of Persons Other than Faculty and Staff. Income computed by multiplying the college-related expenditure by the local figure for payrolls and profits per dollar of local expenditures.

Assumptions and Limitations

The problem this Major Applied Research Project sought to address was the need to acquire data regarding the economic impact of community colleges in New Jersey using a methodology that was less time consuming and less complex than the ones used in the dominant models. This project was designed to provide the nineteen New Jersey Community Colleges with economic data that will be useful at the county and statewide levels. More specifically, the Project was determined to produce and apply two models for the calculation of economic impact statements. The project was designed to also produce a handbook that will be a guide to economic impact calculations by community college personnel.

The support of the major organizations relevant to the Project was assumed to be available. The Project received the endorsement of the following New Jersey associations: Association of County Community College Presidents, Council of County Colleges Research and Planning Committee, County College Business Officers and Community College Association of Institutional Researchers.

Despite the advantages stemming from the development and application of an economic impact model and the production of economic impact statements, the Project had the following limitations:

1. The model developed employed a linear cash flow formula that included only what could be easily measured. More difficult and time consuming measures were excluded.

2. The economic impact statements were inherently limited because they would not measure the colleges' effect on the quality of life in their communities.

3. The model developed, similar to models developed before it, provided built-in understatement by using conservative calculation procedures.

4. The model was intended to produce an estimation of annual impact, a very short term measure.

CHAPTER TWO

Review of the Literature

A comprehensive literature search, utilizing the services of ERIC, the National Center for Higher Education Management Systems and the American Association of Community and Junior Colleges was conducted. The search was designed to provide information for review and analysis in four categories related to economic impact studies: the theoretical and historical bases for the studies; models and handbooks that demonstrate how studies may be conducted; case studies; and discussions of the multiplier effect.

Historical and Theoretical Base

Human Capital

The historical and theoretical bases for economic impact studies have been well examined. During the decade of the 1960s, several authors addressed the concept of economic returns to the individual and to society as a result of education. Eckhaus pointed to a definite relationship between education as an investment in human capital (1962), followed by Bensen (1963) and Bowen (1964) who each discussed economic returns primarily in terms of the development of a better educated and more skilled individual. The human capital concept has been further analyzed by Innes (1965) and Becker (1965), each of whom presented a model for the measurement of the benefits accruing to individuals from a college education.

More recent approaches to the economic impact of education have included Blaug's (1970) general discussion, Schultz's (1971) book on human capital and Raymond and Sensnowitz's (1975) article on the investment returns in higher education. Kastner (1971) has developed an approach to the computation of costs and benefits of a community college education. His analysis deals primarily with the concept of increased human capital. The most recent example of the human capital approach was a study by the National Center for Education Statistics (Chronicle, 1982) which found that a college education offers more immediate rewards to women than to men. The conclusions were based on the results of a long range study of 1972 college graduates.

Community Impact

Banner (1969) studied the general economic impact of a university on its community. Hansen and Weisbrod (1969) looked at the post-secondary costs and benefits. They developed the concept that education costs society as well as provides benefits to its institutions and citizens.

An often cited study is Hudson's (1979) analysis of regional economic effects of higher education institutions. Bowen took a critical look at recent economic impact studies with some comments on the practice of estimating impact (1972) and endorsed a greater public investment in higher education (1977). The regional economic development role of colleges has been discussed also by Hoyl and Bernstein (1981) who maintained that colleges had a positive impact on the New England region; by Laub (1970, 1972) who analyzed the

economic role of colleges in rural areas; and by Horse (1979) who demonstrated the economic development impact of community colleges on Indian communities in the Western United States.

Several authors have addressed the economic costs that have to be born by institutions that accept public dollars. Spriesterbach and Fannell (1978) traced the impact of federal regulatory costs at a public institution, while Dellepenna (1977) analyzed the costs at a private university. Tillis and Tanbrovich (1976) commented on the costs and benefits of federal research dollars on a state economy. Their commentary was critiqued by Bourque and Pedersen (1977).

The authors agree that the substantial public investment in education in general, and higher education in particular, has produced economic benefits to the community that at least equal and probably outweigh the investment, but also merit an increase in public appropriations to education. These authors are divided as to what social costs, if any, should be attributable to education. One particularly lively debate has raged over the assertion by some authors that foregone income of college students is a significant cost. A second concern, which has been expressed frequently, has been the lack of comparative information on the economic benefits of community colleges versus equivalent dollars invested in other public agencies.

There has been much recent scholarly work that has dealt directly with the economic role of community colleges. Alfred has

taken an expanded look at the socioeconomic impact of community colleges, tracing the recent literature and suggesting some models (1980). He has also presented more elaborate models and discussed the political possibilities of improving college resources through impact assessment (1982). Fink (1980) produced a critical review of the state of the art of economic relationships between colleges and their communities. Friedlander (1982) has presented a summary and a critique of recent community college impact statements. Kubala (1981) has provided an expanded rationale for conducting a local economic impact study on community colleges. Andrew and Wellsfry (1977) have described the rationale for conducting a statewide study.

Models and Handbooks

Systems Approach

Models and manuals for determining economic impact have been produced by professional associations and state agencies. Armijo, Lenning and Micek have been exceptionally prolific in their work for the National Center for Higher Education Management Systems (NCHEMS). Armijo's work has dealt with not only economic impact, but also community needs assessments (1981). His edited handbook of case studies, which he co-authored with Micek and Cooper (1978), has been a helpful guide to many administrators. Lenning has authored several manuals on the measurement of outcomes (1976a, b, c), one a highly technical manual in conjunction with Lee, Micek and Service. Micek, in addition

to the publications just listed, has co-authored a study with Arney (1979) and two widely utilized manuals, one with Armijo and Renkiewicz (1977), and another with Service and Lee (1975). These manuals were developed by NCHEMS after field testing. They have been useful to academicians for program evaluation and to researchers for assessing community-related outcomes such as economic impact. NCHEMS also sponsored a 1979 project that resulted in three case studies in the assessment of community college impacts.

The most widely mentioned and utilized handbook for economic impact studies has been produced by Caffrey and Isaacs (1971) for the American Council on Education. The handbook described in detail over forty mathematical models for the calculation of various kinds of economic impact.

Nearly all of the models and handbooks borrow generously from the major economic impact categories first described by Caffrey and Isaacs. These major categories are listed in Figure 2.

According to one recent analysis (Muller, 1982), the Caffrey and Isaacs models contain a total of 78 measurable variables.

The Handbook's complexity and heavy dose of mathematical modeling has most probably scared off many would be economic impact analyzers. Yet, case study after case study mention the Caffrey and Isaacs Handbook and its models as the basis for calculation of impact. Goodman (1979) has found Caffrey and Isaacs to be the most thorough and reliable

The Major Economic Impact Models
Contained in Caffrey and Isaacs

Business Models

College-Related Business Volume
Value of Local Business Property Committed
to College-Related Business
Expansion of Local Banks' Credit Base
Resulting from College-Related Deposits
Local Business Volume Unrealized because
of Existence of College Enterprises

Government Models

College-Related Revenues Received by Local
Governments
Operating Cost of Local Government-Provided
Municipal and Public School Services
Allocable to College-Related Influence
Value of Local Governments' Properties
Allocable to College-Related Portion
of Services Provided
Real Estate Taxes Foregone through the Tax
Exempt Status of the College
Value of Municipal-type Services Self-Provided
by the College

Individual Models

Number of Local Jobs Attributable to the
Presence of the College
Personal Income of Local Individuals from
College-Related Jobs and Business
Activities
Durable Goods Procured with Income from College-
Related Jobs and Business Activities

Figure 2

resource. Manahan and Carter (1979) have used Caffrey and Isaacs to develop a model specifically attuned to four-year colleges. Palmer (1978), although accepting most of the models, has taken exception to the Caffrey and Isaacs assertion that part-time students have little economic impact. Owings (1977) and Phillips (1977) have used Caffrey and Isaacs as the basis for developing models that they assert are more relevant for community colleges.

Practical "How to" handbooks have been produced for use by community colleges in Maryland (Linthicum, 1978c), Virginia (Wellsfry, 1971), Washington (Johnson, 1978), Florida (Central Florida, 1973), and Illinois (Bess, 1981), although they all are based on the Caffrey and Isaacs Handbook, the Linthicum and Jackson manuals depart from Caffrey and Isaacs by not utilizing surveys and substituting readily available census, labor and personal income data. Each of their manuals combines a local and a statewide approach.

Case Studies

Seventy-three published case studies of economic impact statements have also been analyzed as part of this literature review. These case studies had three major subcategories: statewide, community college, and other. The other category included economic impact studies done by private and public colleges and universities.

Statewide Impact

Statewide economic impact studies accounted for seven of the case studies reviewed. Five of the studies, those that estimated economic

impact for Washington (Jackson, 1978), Virginia (Welsh, 1976), Maryland (Linthicum 1978a), Illinois (Bess, 1980), and Michigan (Packwood, 1981), were analyses of the economic outcomes of community college systems. Two of them were economic impact statements relating to all of the higher education institutions in the Commonwealth of Pennsylvania (Pennsylvania, 1981) and North Dakota (Dobesh and Henry, 1975). A seventh was a look at the impact of the independent colleges in New York State (Gayard Weintraub, 1978). The statewide surveys leaned more heavily on the Government-Related models of Caffrey and Isaacs than on the Business and Individual models, although all three elements did appear. Of note is the fact that the Maryland and Washington studies utilized only standard government reports and census data to calculate impacts. The other studies combined reports with survey information.

Four Year Colleges

Forty-two of the economic impact studies reviewed were conducted by or for four year colleges and universities or regional consortia of colleges. Twenty-nine states were represented by the Sample of Publications. The emphasis among these studies were the Business models of Caffrey and Isaacs. The majority had conducted surveys to supplement official institutional and government records. The institutions that have had economic impact studies performed are listed in Table 4.

Table 4

Four Year Colleges and Universities That Have Conducted Economic Impact Studies

College	State	College	State
Alcorn State College	Mississippi	Louisiana State University	Louisiana
Andrews University	Michigan	Maine, University of	Maine
Berkelley, University of	California	North Dakota State University	North Dakota
California, at		Northwest Missouri State	Missouri
Boise College	Idaho	University	
Boston Area Colleges	Massachusetts	Pittsburgh, University of	Pennsylvania
Cincinnati, University of	Ohio	Potomac State College	West Virginia
Denver, University of	Colorado	Portland State College	Oregon
Drake University	Iowa	Ramapo State College	New Jersey
Georgia State College	Georgia	Rhode Island, University of	Rhode Island
Gonzaga University	Washington	Santa Cruz, University of	California
Hampden County Massachusetts	Massachusetts	California, at	
Colleges		St. Cloud University	Minnesota
Illinois, University of	Illinois	Trenton State College	New Jersey
Indiana State University	Indiana	Tulane University	Louisiana
Indiana, University of	Indiana	Vermont State Colleges	Vermont
Iowa, University of	Iowa	Villanova University	Pennsylvania
John Hopkins University	Maryland	Virginia Polytechnic Institute	Virginia
Knoxville, University of	Tennessee	Virginia State University	Virginia
Tennessee, at		Virginia, University of	Virginia
La Cross, University of	Wisconsin	Widener University	Pennsylvania
Wisconsin, at		Winona State College	Wisconsin
Liberty Baptist College	Virginia	Wisconsin, University of	Wisconsin

Community Colleges

Twenty-three community college economic impact studies were also reviewed. These studies relied almost exclusively on the Caffrey and Isaacs handbook. With only four exceptions, they combined available information with survey data. The four others utilized only current institutional information and government produced census data and economic indicators. The colleges whose statements were reviewed are listed in Table 5 below.

Table 5
Community Colleges That Have Conducted
Economic Impact Studies

College	State
Alabama State Junior	Alabama
Bakersfield College	California
Broome Community College	New York
Bucks County Community College	Pennsylvania
Burlington County College	New Jersey
Chemeketa Community College	Oregon
Community College of Allegheny County	Pennsylvania
Cypress College	California
Florida Junior College	Florida
Gainesville Junior College	Florida
Genessee Community College	New York
Harrisburg Area Community College	Pennsylvania
Long Beach City College	California
Mercer County Community College	New Jersey
Metropolitan Community College	Missouri
Mohawk Valley Community College	New York
Mount Hood Community College	Oregon
Onondaga Community College	New York
Rockland Community College	New York
Spokane Community College	Washington
St. Louis Community College	Missouri
Thomas Nelson Community College	Virginia
Valencia Community College	Florida

Multiplier Effect

The multiplier effect has been the most controversial aspect of economic impact studies because its size directly effects the dimensions of a College's economic impact on its community.

The multiplier is based upon the percent of each dollar spent in the local business community that is then respent within the business community in the successive rounds of spending. For example, 2.5 may be chosen by the researcher as a conservative estimate of the impact of the original amount of expenditures. A 2.5 multiplier means that the college creates business within the county equal to two and one-half times as much as is originally spent by the college, its employees and students. For example, for every \$100,000 spent by the college, students and employees, \$250,000 is being generated in local business activity. This ratio is 2.5:1 or a multiplier of 2.5. Figures give a graphic example of how the multiplier works. Figure 3 is an elaboration of the concept of spending cycles. It is based on models developed by Paris and Eskow (1978) and Romano and Herbert (1977). Figure 4 depicts the elements of spending that contribute to the multiplier effect.

Palmer (1958) has the earliest noted article on multipliers but another early work, Weiss and Goody (1966) has been frequently cited as the authoritative article on the topic. They discussed multipliers in two categories: local and statewide. Local multipliers ranged from 1.2 to 2.3 while statewide multipliers ranged from 1.2 to 4.0

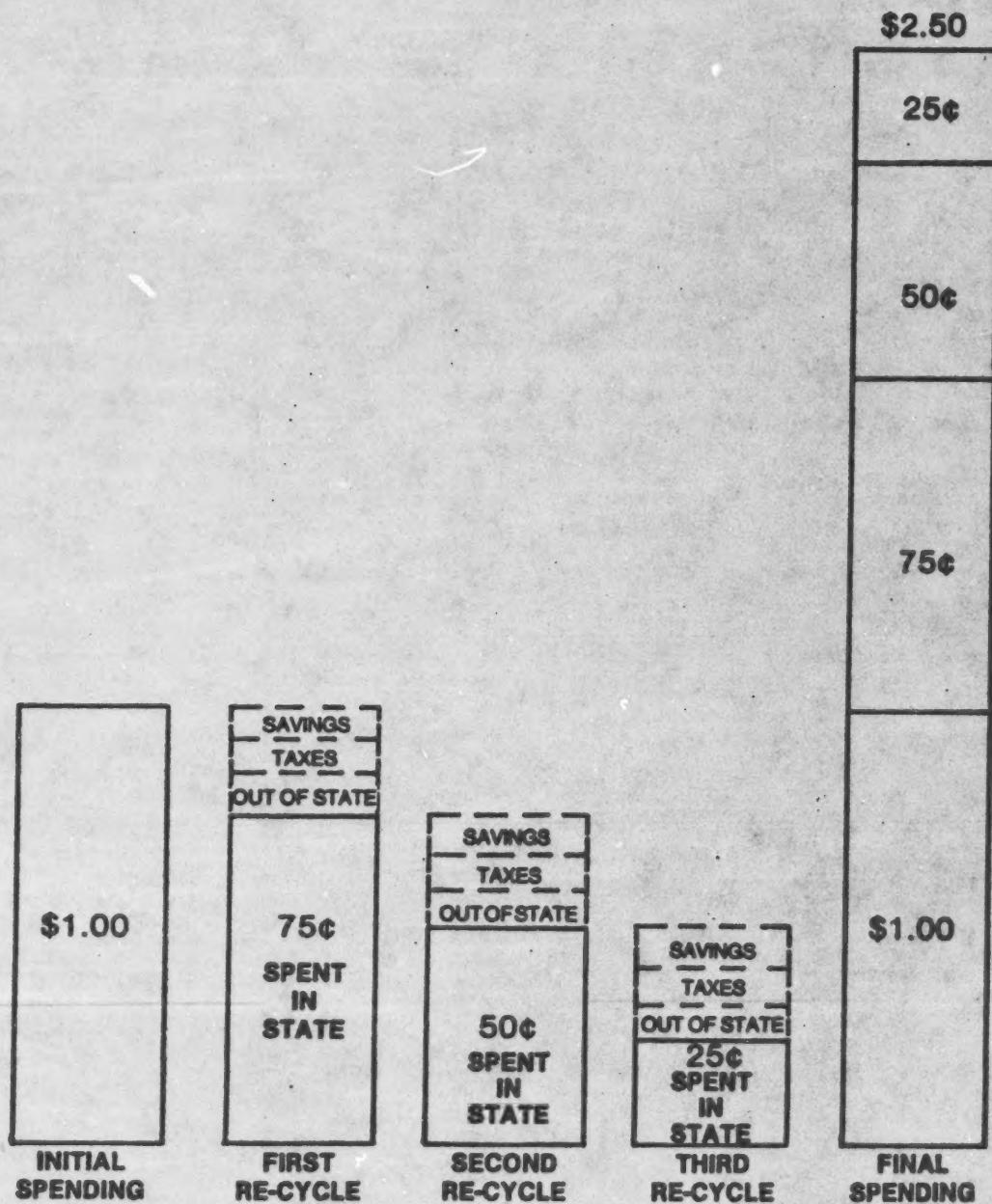


Figure 3
How the Multiplier Works

THE MULTIPLIER EFFECT AS IT RELATES TO THE MONMOUTH COUNTY ECONOMY

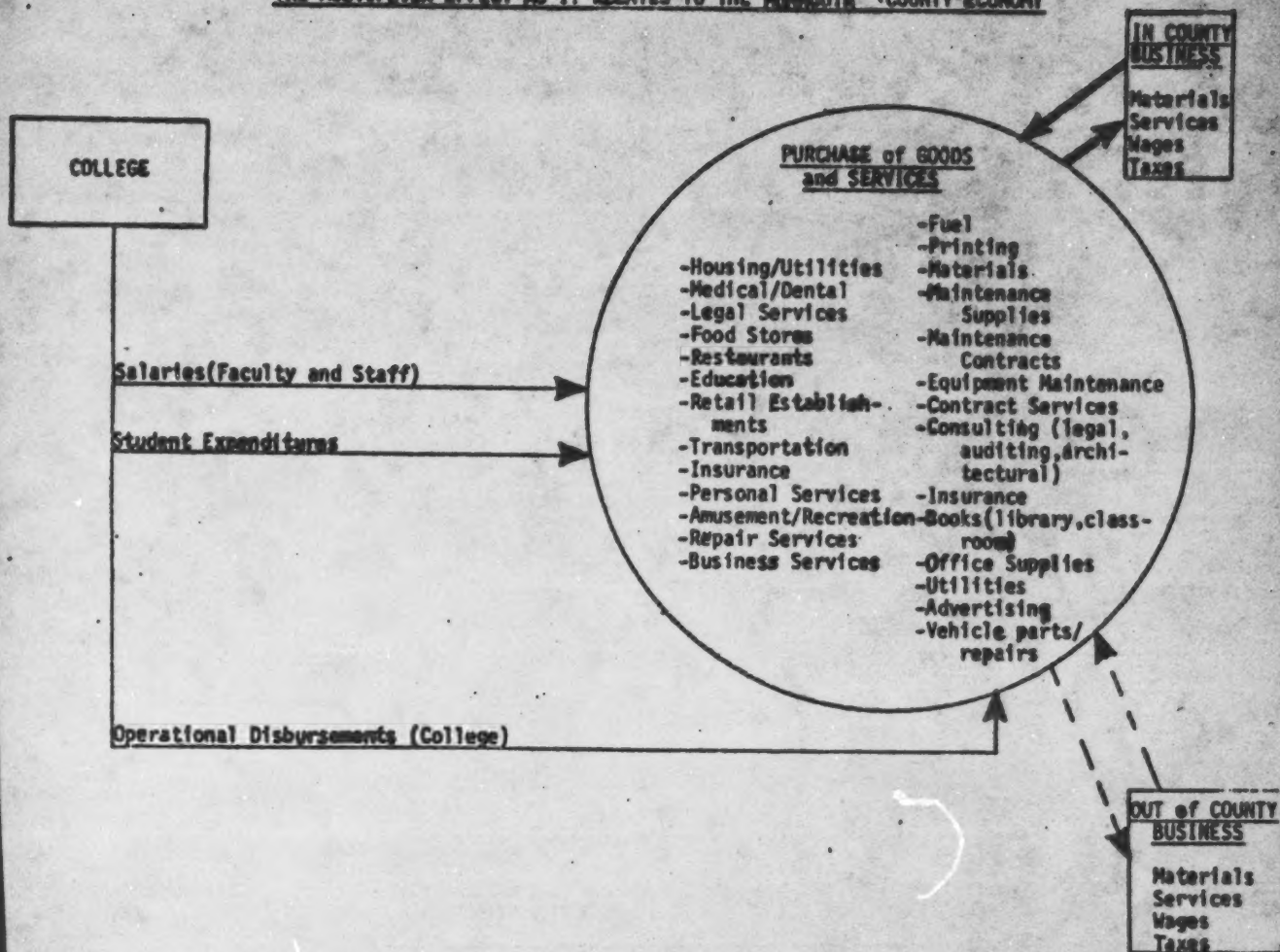


Figure 7

but averaged 2.5 to 3.0. Caffrey and Isaacs (1971) after citing the ranges mentioned by Weiss and Gooding, recommended 1.9 as a conservative multiplier to be used by colleges estimating impact on their communities.

Salley (1976) has provided some parameters for determining multipliers that appear to verify the earlier work of Weiss and Gooding. The most important variables were population size and level of retail sales activity. Salley concluded by recommending, as did Caffrey and Isaacs, the case of lower multipliers as a conservative hedge.

Linthicum (1978c) used earlier work by Weiss and Gooding and Salley to determine multipliers for each Maryland County but she also adapted a conservative 2.0 for her statewide multiplier.

Hudson (1979) has produced the most recent discussion of the multiplier. This work tended to validate earlier studies that showed lower multipliers (1.0 to 2.0) for localities and higher multipliers for regions and states (2.0 to 3.0).

CHAPTER THREE

Methodology

The methodology of this Major Applied Research Project had three distinct parts: management, development and complementation, and evaluation. The research questions cited on page 13 were also addressed in a systematic manner.

The remainder of Chapter Three describes the methodology in detail. In addition, a chronology of the project has been provided, beginning on page 41.

Project Management

The project had an advisory committee that assisted in determining the scope and nature of the three proposed products. The members included the following individuals: Chairperson, Research and Planning Committee, Council of County Colleges; Special Assistant to the Council of County Colleges; Chairperson, County College Business Officers Association; and the Chairperson, Community College Association of Institutional Researchers. The committee met periodically, but the primary means of communication was via telephone or mail.

As part of the project, the assistance of the following New Jersey organizations was solicited and received: the Research and

Planning Committee, Economic Development Committee and Legislative Committee of the Council of County Colleges; the County College Business Officers Association; the Community College Association of Institutional Researchers; and the Community College Public Relations Council.

Brookdale Community College provided the following support to the project: director's time; secretarial time; typesetting and printing time and material; computer machine and personnel time; clerical time and materials; keypuncher time and materials; computer data analyst time; and telephone, postage and travel expenses.

Project Development and Implementation

An economic impact statement survey was developed. The elements of the survey were determined by a comprehensive literature review and consultation with the Project Advisory Committee. The survey was developed for use by each community college and was designed to help colleges calculate their direct economic impact on their counties. The survey was field tested at Brookdale Community College, Salem Community College, and Passaic County Community College. The survey was based on the process described in Figure 5 on page 35.

Following field testing, the survey was revised and distributed with guidelines for implementation to all nineteen New Jersey Community Colleges. Appropriate College officials completed the survey and estimated the economic impact of their Colleges on their Counties. The

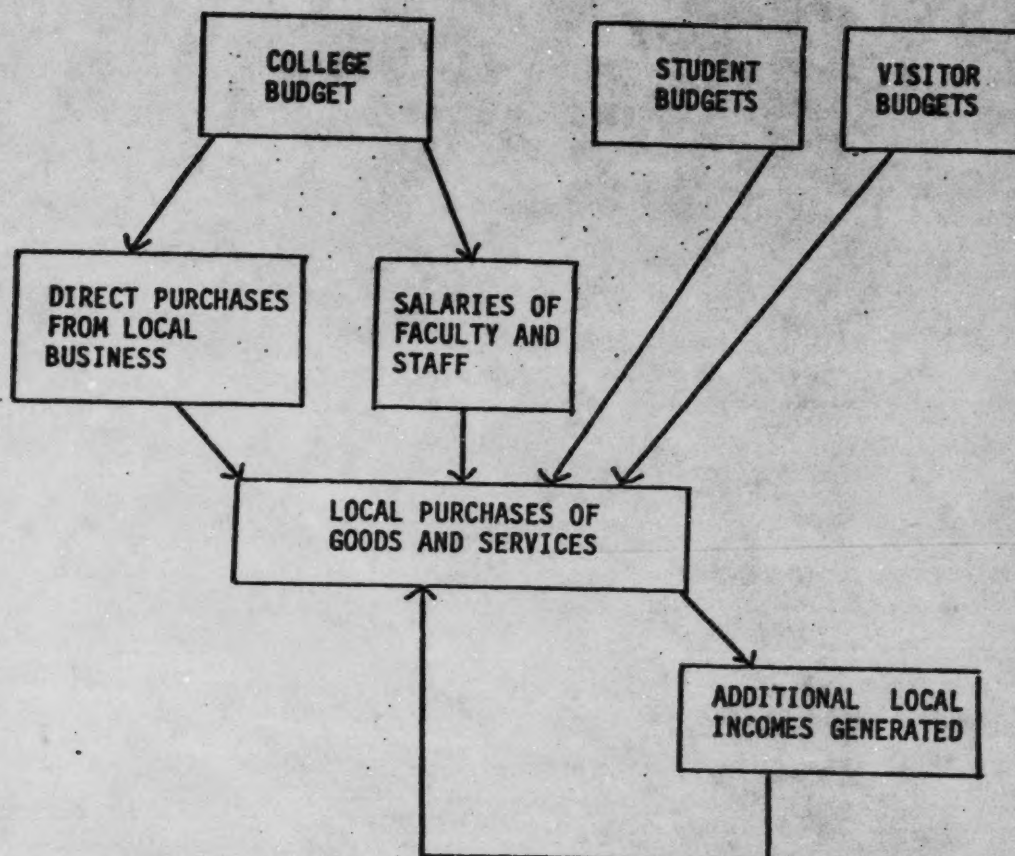


Figure 5/

An Economic Impact Measurement Model

Source: Kenneth V. Greene and Neil R. Scheier. SUNY Binghamton and Broome County: A Case Study in Economic Impact (Binghamton, N.Y.: SUNY Binghamton, 1978)

Colleges needed to receive the survey in early December 1982 so it could be utilized in defense of College requests for additional County appropriations that began, by statute, on February 1, 1983. The Association of Community College Presidents of New Jersey requested that appropriate college officials cooperate and participate in the Project.

The data generated by the application of the survey were used to estimate the economic impact of the community college sector on the State of New Jersey. The local data were supplemented with appropriate statewide information and economic indicators. The statewide economic impact statement was reviewed and used by the Project Advisory Committee. The statement contained information primarily for use in the State Legislature's appropriation process and secondarily for other sector-wide public relations purposes. The statewide statement was completed by late February to be used in the FY1984 appropriations process that started in late March 1983. The Legislative Committee of the Council of County Colleges of New Jersey used the statement in its testimony to the Joint Appropriations Committee of the Legislature.

The third product developed was a handbook which was written and distributed after production of the local and statewide statements. The handbook was an expansion of the guidelines distributed in mid-March 1983.

Figure 6 is a task chart which outlines the time frame for the project.

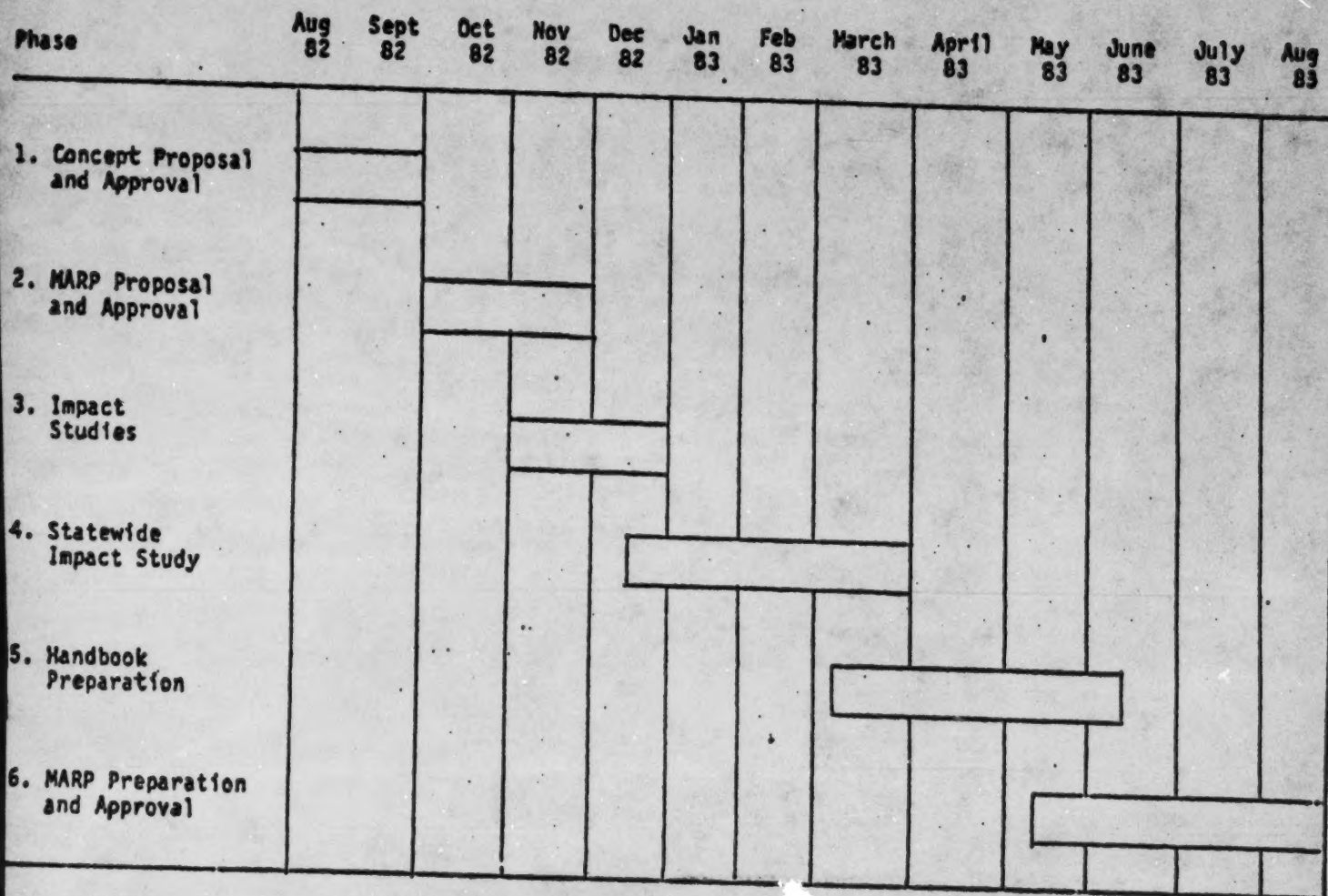


Figure 6
Task Chart for Economic Impact Study
Major Applied Research Project

Project Research Issues and Questions

The essential elements of an economic impact study, for the purposes of influencing state legislators and bureaucrats, were determined through discussions with the legislative relations consultant and the chairman of the Legislative Committee of the Council on County Colleges. The Project Advisory Committee also provided information.

The essential elements of an economic impact study, for the purposes of influencing local county governments, were determined through consultation with the chief business officers and institutional research administrators, through their statewide organizations. The Research and Planning Committee of the Council of County Colleges, consisting of several presidents and trustee chairpersons, was also consulted.

In an attempt to eliminate the need for surveys of staff and students, a systematic search of available institutional and governmental data was conducted. The search included the review of end of fiscal year audits, Census Data, Bureau of Labor Statistics Data, and HEGIS and NCES statistics.

The multiplier effect has always been the most controversial aspect of economic impact studies. An appropriate multiplier was developed for each county and for New Jersey by a thorough review of the literature and the previously conducted economic impact studies. The review focused on the reasons why certain multipliers were chosen, for certain economic and geographic regions.

Brookdale Community College's economic impact on Monmouth County, New Jersey, was estimated by the completion of the survey.

The economic impact of all New Jersey community colleges for which completed surveys were received was compared. The responses to the local impact questions on the proposed survey were reviewed. An appropriate basis for comparison was a comparative impact measure (I). This measure was produced by the division of the community college's estimated economic impact (E) by the county government's revenue contribution (CR). The equation is summarized as follows:

$$I = E \div CR.$$

The economic impact of the system of New Jersey community colleges was estimated by the totalling of the New Jersey impact questions contained in the survey and applying an appropriate multiplier.

Project Evaluation

This Major Applied Research Project's effectiveness was measured by the timely production of the proposed products according to the timetable contained in Figure 6. In summary, the production timetable was as follows:

1. A model for the calculation of local economic impact statements was developed and distributed, with guidelines for implementation by mid-December, 1982.
2. A statewide economic impact statement was developed and presented to the appropriate officials for use before the State Legislature's Joint Appropriations Committee by late February 1983.

3. A Handbook that will serve as a guide for the calculation of local economic impact statements was produced by mid-March, 1983.

In addition to the above specific measures, the Research and Planning Committee of the Council of County Colleges of New Jersey has measured the continued use of the produced model and handbook.

The entire Major Applied Research Project was evaluated, according to the following standard procedures, by the Project Advisory Committee and the Research and Planning Committee of the Council of County Colleges of New Jersey. A mail survey of the members addressed the following questions about the Project:

1. Was an appropriate format followed?
2. Was the nature of the problem precisely and clearly stated?
3. Did the background section establish a reasonable conceptual base for the Project?
4. Were the procedures sufficiently and clearly delineated to permit replication?
5. Were limitations and assumptions noted?
6. Did a definition of terms section clarify potentially ambiguous concepts?
7. Were the results clearly and concisely stated in a descriptive manner?
8. Were the implications of the Project clearly stated and derived from the results?

Chronology of the Project

The important events in the implementation of the Major Applied Research Project are detailed as follows:

- May 24, 1982 - The County College Presidents were surveyed about their research interests by the Research and Planning Committee of the Council of County Colleges.
- June 29, 1982 - The Research and Planning Committee met, analyzed responses of Presidents and identified an Economic Impact Study as a high priority sector-wide project for 1982-83.
- August 30, 1982 - The Association of County Community College Presidents endorsed the Economic Impact Study as a high priority project for 1982-83 and commissioned G. Jeremiah Ryan, Research and Development Officer at Brookdale Community College to direct the Project.
- September 6, 1982 - The Economic Impact Project Advisory Committee was appointed.
- September 8, 1982 - The concept proposal for a Major Applied Research Project entitled The Direct Economic Impact of New Jersey's Community Colleges was submitted to Dr. George F. Aker.

- September 13, 1982 - The Council of County Colleges endorsed the recommendation of the Association of Presidents that an economic impact study is a priority project for 1982-83.
- September 17, 1982 - On-line computer search of published Economic Impact articles is conducted.
- September 22, 1982 - The Project Director met with the Committee on Economic Development of the Council on County Colleges to discuss the economic impact project. The Committee endorsed the project.
- September 24, 1982 - The Community College Association of Institutional Researchers met and discussed the economic impact studies.
- September 25, 1982 - Dr. Aker accepted concept proposal.
- October 1, 1982 - The Research and Planning Committee met and identified major survey areas of economic impact study.
- October 8, 1982 - The Conference of Chief Business Officers were briefed on the Project and three pilot colleges were identified.
- October 11, 1982 - The Major Applied Research Project proposal entitled The Direct Economic Impact of New Jersey's Community Colleges was submitted to Dr. Aker and to the Project Advisory Committee.

- October 16, 1982 - The Project Director and Dr. Aker met in Philadelphia to discuss Major Applied Research Proposal.
- October 27, 1982 - Formal petition for early start of Major Applied Research Project is sent to Dr. George Barton.
- October 27, 1982 - Second draft of Major Applied Research Project was sent to Dr. Aker.
- October 28, 1982 - First draft of an Economic Impact Survey Instrument was distributed to Chief Business Officers, Research Administrators, and Project Advisory Committee.
- November 2, 1982 - First draft of an Economic Impact Survey Instrument was shared with Dr. Aker.
- November 8, 1982 - Project Advisory Committee met via telephone to discuss status of Survey instrument.
- November 8, 1982 - Dr. Barton announced approval of petition for early start of Major Applied Research Project. The Project Committee is Dr. Aker, Dr. Peter Mills and Dr. Phil DeTurk.
- November 12, 1982 - The Project Director met with the Conference of Chief Business Officers and discussed elements of college expenditures component of the Economic Impact Survey.

- November 15, 1982 - The Project Director met with the Research and Planning Committee and discussed the Economic Impact Survey instrument and the multiplier concept.
- November 16, 1982 - The three pilot colleges were sent the Economic Impact Survey.
- November 19, 1982 - The Project Director met with the Community College Association of Institutional Researchers to revise the Survey instrument.
- November 22, 1982 - Project Director held telephone conference with chairperson of Legislative Committee of the Council of County Colleges and the Council's legislative relations consultant. The areas of the survey of potential interest to state legislators were discussed.
- November 23, 1982 - Project Director discussed survey with administrators at three pilot colleges.
- November 23, 1982 - Computer search of dissertation abstracts was conducted.
- November 27, 1982 - Dr. Aker approved Major Applied Research Project Proposal.
- November 29, 1982 - Project Advisory Committee met via telephone and discussed status of pilot studies.

- December 3, 1982 - Pilot studies were received. Economic Impact Survey was revised.
- December 7, 1982 - Economic Impact Survey form was distributed to Presidents, Chief Business Officers and Research Administrators.
- December 8, 1982 - Project Advisory Committee met via telephone and discussed project timetable.
- December 10, 1982 - Project Director met with Community College Public Relations Council to discuss public relations uses of the Project.
- December 13, 1982 - ERIC search of Economic Impact Studies was ordered.
- December 18, 1982 - Dr. Mills approved Major Applied Research Project Proposal.
- December 31, 1982 - Dr. DeTurk approved Major Applied Research Project Proposal.
- January 3, 1983 - Project Advisory Committee met via telephone to discuss progress of college returns of the survey.
- January 6, 1983 - Project Director issued a reminder letter regarding the Survey to Presidents, Chief Business Officers and Research Administrators.
- January 13, 1983 - Brookdale's Economic Impact Survey was completed, revealing an estimated total economic impact of \$71,271,086.

- January 18, 1983 - Project Advisory Committee met via telephone to discuss status of survey returns.
- January 20, 1983 - Dr. Reddig, Chairperson of the Research and Planning Committee and President of Gloucester County College, issued a reminder notice regarding the survey to the Presidents.
- January 21, 1983 - Project Director sent summary sheets from Survey respondents to Public Relations Officers with a suggested press release.
- January 25, 1983 - Project Advisory Committee met via telephone to discuss status of Survey returns.
- January 25, 1983 - Project Director submitted material regarding sector economic impact to author of sector-wide Public Relations brochure.
- January 25, 1983 - Project Director informed Major Applied Research Project Committee, via mail, of progress of the Project.
- February 3, 1983 - Results of Brookdale's economic impact study were shared with the institution's Board of Trustees and State Legislative delegation.
- February 4, 1983 - Project Director and Dr. Reddig each contacted four colleges that had not yet returned the surveys.

- February 7, 1983 - Project Director issued a "Utilization of Economic Survey" questionnaire to Presidents, Chief Business Officers and Research Administrators.
- February 14, 1983 - Project Advisory Committee met to receive preliminary report of the Director. All colleges participated and the total statewide economic impact was estimated at \$822,054,857.50.
- February 23, 1983 - Project Director informed Major Applied Research Project committee, via mail, of progress of the Project.
- February 24, 1983 - Project Director issued Statewide Economic Impact Report to Project Advisory Committee and Research and Planning Committee.
- March 1, 1983 - Project Director submitted summary of Project to Legislative Relations Consultant for inclusion in testimony to Joint Appropriations Committee of the Legislature.
- March 4, 1983 - Project Director issued Statewide Economic Impact Report to County College Presidents.
- March 4, 1983 - Data comparisons for all Survey respondents were mailed to Presidents, Chief Business Officers, and Research Administrators.

- March 4, 1983 - Brookdale's State Legislative delegation received Statewide Economic Impact Report.
- March 11, 1983 - Project Director issued first draft of Handbook for Conducting a Study of the Economic Impact of a Community College to Project Advisory Committee and Planning Committee.
- March 14, 1983 - Council of County Colleges received Statewide Economic Impact Report.
- March 24, 1983 - Joint Appropriations Committee of the State Legislature received Fiscal Year 1984 testimony which included data on economic impact of the community colleges.
- March 29, 1983 - After comment period ended, Final Statewide Economic Impact Report was distributed to Presidents, Research and Planning Committee, and Project Advisory Committee.
- April 11, 1983 - Final draft of Handbook for Conducting a Study of the Economic Impact of a Community College was issued to Presidents, Business Officers, and Research Administrators.
- April 14, 1983 - Results of the project were discussed with the Community College Association of Institutional Researchers.

- April 15, 1983 - Results of the project were discussed with the Community College Public Relations Council.
- April 15, 1983 - First draft of Major Applied Research Project was submitted to Dr. Aker.
- June 10, 1983 - The results of the Project were discussed with the Conference of Chief Business Officers.
- June 14, 1983 - The Joint Appropriations Committee of the State Legislature approved an increase in state aid to county colleges of \$3.5 million.
- June 30, 1983 - Second draft of Major Applied Research Project was submitted to Dr. Aker.

Summary

This Major Applied Research Project was completed within the initially proposed time frame described in Figure 6 on page 37. The project management, implementation and evaluation components occurred in sequence and without interruption. The Chronology of the project accurately describes the sequence of key decision making dates that led to the completion of the project.

The methodology led to the successful accomplishment of the primary emphasis of the project, the development and implementation of three products: a local economic impact model; a statewide economic impact statement; and a handbook to assist community college personnel in local economic impact calculations.

CHAPTER FOUR

Presentation of Results

The major outcome of this project was the production of seventeen local and one statewide economic impact statements for the New Jersey community college system. The results of the study were shared with all New Jersey community college presidents; the Council of County Colleges of New Jersey and its committees; local county governing boards; the Joint Appropriations Committee of the State Legislature; statewide business and labor organizations; the statewide professional organizations of county college business officers, research administrators and public relations personnel.

The specific findings of the Major Applied Research Project are presented in the pages that follow. The findings are divided into six subcategories, each of which contains a presentation of the results of a distinct aspect of the Project:

1. Development of the Survey.
2. Determination of the Multiplier.
3. The Research Questions.
4. Utilization of Results.
5. Production of a Handbook.
6. Evaluation of the Project.

Development of the Survey

The dominant models for determining the economic impact of a community college on its locality were authored by Caffrey and Isaacs in 1971 for the American Council on Education. Although all the community colleges utilized the Caffrey and Isaacs models, several deviated from the use of some of the more time consuming and complex calculations. Rarely did a community college report include estimates as a result of all of the models contained in Caffrey and Isaacs.

The review of the case studies, reported in Chapter Two, revealed three significant problems with strict adherence to the models developed by Caffrey and Isaacs. First, several of the economic estimates presented by Caffrey and Isaacs are either inappropriate or less appropriate for use by community college personnel. An objective of this major applied research project was to produce a research instrument that gathered information that would be most usable by community college officials.

Second, the survey of faculty and staff designed to produce estimates of their local spending presents a problem. This survey, which may be adapted for local purposes, presents several problems to the community college administrator who wishes to estimate the economic impact of his community college: The survey is difficult to adapt for a community college; the response rate among students

is often too low to yield reliable information; and, most importantly, the development and implementation of the survey is a time consuming task. An objective of this major applied research project was to produce a research instrument that would replace the faculty and staff survey while still providing reliable information for the estimation of economic impact.

Third, a problem exists with the retail gravity model that was designed to enable researchers to determine the percentage of non-housing expenditures that an individual is likely to make in his local environment. The model is based on the gravity theory which states that the amount of money spent for non-housing expenditures is inversely proportional to the square of the distance to the point of purchase. This model presents certain problems to the community college economic impact estimator: The inherent mathematical complexity of the concept; the difficulty in obtaining appropriate retail sales data; and the difficulty in operationalizing a "sales area". New Jersey, with its proximity to two of the country's largest retail markets, New York and Philadelphia, would present a significant problem to community college officials attempting to use the retail gravity model. An objective of this major applied research project was to produce a research instrument that would replace

the retail gravity model while still providing reliable information for the estimation of economic impact.

Choosing the Appropriate Models

In Chapter Two, Figure 2 contained what was assumed to be at the time of the major applied research project proposal to be the models in Caffrey and Isaacs that were most appropriate for inclusion in the project. The assumption was tested in a series of meetings with community college professionals.

All of the models contained in the Caffrey and Isaacs publication were presented for review and a determination of appropriateness to the following organizations: The Research and Planning Committee of the Council of County Colleges, the Project Advisory Committee, the Chief Business Officers Conference, and the Community College Association of Institutional Researchers. Items were judged on the following basis:

1. Was the item relevant to community colleges?
2. Were the data available?
3. How much time would be needed to gather the information?
4. Was the item of little meaning or magnitude?

The assumptions made in the project proposal were validated at every meeting. There was a unanimous expression of a desire for the project to gather its information in as simple a manner as possible in as little time as possible. Consequently, only seven Caffrey and Isaacs models were used in the project. Several of the models were adapted.

The specific models used as the basis for knowing what data had to be collected by the survey instrument are:

Model B - 1.1 (Adapted) College Related Local Expenditures

$(E)_{LCR}$ = College-Related Local Expenditure

$(E)_{LCR} = (E)_L^C + (E)_L^F + (E)_L^S$

$(E)_{LC}$ = Local expenditures by the college (model B-1.1.1)

$(E)_{LF}$ = Local expenditures by the faculty and staff (model B-1.1.2)

$(E)_{LS}$ = Local expenditures by the students (model B-1.1.3)

Model B - 1.1.1 Local Expenditures by the College

$(E)_{LC}$ = Local Expenditures by the College

$(E)_{LC} = (e)_{LC} (E - W_{F,S} - XF_C - R_C + FSA)$

$(e)_{LC}$ = Proportion of total college expenditures that are local, excluding compensation, internal items and taxes

E_C = Total college expenditures

$W_{F,S}$ = Gross compensation to faculty, staff, and students

XF_C = Internal account transfers and payments

R_C = Taxes and other payments to governments

FSA = Total expenditures generated by faculty student association and student activity fees.

Model B - 1.1.2 Local Staff Expenditures

$(E)_{LF}$ = Local Expenditures by Faculty and Staff

$(E)_{LF} = (E)_{HF} + (E)_{NH F} + (E)_{L NLF}$

$(E)_{HF}$ = Expenditures by local faculty and staff for local housing (model B - 1.1.2.1)

$(E)_{NH F}$ = Local nonhousing expenditures by local faculty and staff (model B-1.1.2.2)

$(E)_{L NLF}$ = Local expenditures by nonlocal faculty and staff (model B-1.1.2.3)

Model B - 1.1.2.1 Rental Expenditures

$(E)_{HF}$ = Expenditures by Full-time Faculty and Staff for Local Rental Housing

$(E)_{HF} = (f)_r (R)_{LF}$

f_r = Number of full-time faculty and staff renting locally

$(R)_{LF}$ = Average yearly rent per faculty and staff renting local housing

Model B - 1.1.2.2 Local Non-Housing Expenditures

$(E)_{NH F}$ = Local Nonhousing Expenditures by Local Faculty and Staff

$(E)_{NH F} = (f)_L (e)_{LNH F} (NCI)_F$

f_L = Proportion of faculty and staff residing locally

$(e)_{LNH F}$ = Proportion of a consumer's total expenditures spent on nonhousing items in Monmouth County

NCI_F = Net College income of faculty and staff

Model B - 1.1.2.3 Local expenditures by Nonlocal Staff

$(E)_{L NLF}$ = Local expenditures by Nonlocal Faculty and Staff

$(E)_{L NLF} = (1-f)_{L} (E)_{1 NLF} (NCI)_F$

f_L = Proportion of faculty and staff residing locally

$(E)_{1 NLF}$ = Estimated proportion of nonhousing expenditures spent locally by each nonlocal faculty and staff person

NCI_F = Net college income of faculty and staff

Model B - 1.1.3 (adapted) Local Expenditures by Students

$(E)_{L S}$ = Local expenditures by Full-time Students

$(E)_{L S} = (E)_{M LS}$

$(E)_{M LS}$ = Local expenditures by students residing in Monmouth County (model B - 1.1.3.1)

Model B - 1.1.3.1

$(E)_{M LS}$

Local Expenditures, Exclusive of Room, by Full-time Students Residing in Monmouth County

$(E)_{M LS} = (S)_L (S)_{1m S}$

S_L = Number of full-time students living locally

(E) = Average 9 month expenditure in Monmouth County, exclusive of room, per student of this type

Model B - 1.1.4.2

$(E)_{HS}$

Expenditures by Students for Local Rental Housing

$(E)_{HS} = (S)_H (E)_{hS}$

S_H = Number of students renting local housing

$(E)_{HS}$ = Average 9 month rental expenditure per student

The objective of identifying the most appropriate models for use by community college personnel was accomplished.

Substitute for Staff and Student Survey

A suitable substitute for the time consuming task of developing and implementing a survey of staff and students was an objective of this project. The models presented on pages 54-56 included the important variables that needed to be addressed by the project. A two step process was developed to substitute for the survey of staff and students.

First, college records were searched for several items of basic information as follows:

1. The total number of College employees was obtained from calendar year 1981 payroll records. W-2 information or FY 82 budget data would also have included the information.

2. The number of college employees who live in the County was obtained by reviewing address information on payroll or in College directory. If part-time data were not readily available, the full-time percentage was used.
3. The number of college employees who live in New Jersey was obtained by reviewing address information on payroll or in College directory. If part-time data were not readily available, the full-time percentage was used.
4. Total disposable income available to College employees was available in College Business Records. The figure was money paid directly to staff and did not include taxes and retirement.
5. The total number of full-time students was available from the end of fiscal year audit. Fall 1981 audited data were used.
6. The total number of part-time students was available from the end of fiscal year audit. 1981 audited data were used.
7. The average annual college related expenditures by full-time students was available from the Financial Aid office. The figure excluded tuition and fees.
8. The average annual college related expenditures by part-time students was available from the Financial Aid office. The figure excluded tuition and fees.

Second, after the data available from various College offices were gathered, the models called for estimates of income spent on non-housing and rental items. Standard government documents were consulted to provide County averages for each item.

To determine the percentage of expenditures spent on non-housing items, the June 9, 1982 edition of New Jersey Economic Indicators (Drdak, 1982) was reviewed. The publication included a U. S. Bureau of Labor Statistics exhibit titled "What the Average Middle Income Family Spends." The exhibit projected annual costs for a typical family of four. Costs were based on a collection of goods and services that was assumed to be typical in 1981 and not what households actually spent in 1981. The per county data presented in Table 6 were extracted from the Indicators exhibit. The middle income figures were used, despite the fact that several New Jersey counties have upper income average households, in order to understate the variable in the total estimated economic impact.

The percentage of staff who rent and how much they spend on rental expenditures was calculated by reviewing two 1980 Census publications. The first, entitled "Housing Units, Occupancy Status, Units in Structure, and Year Structure Built" (U. S. Census), contained important information on the percentage of residents of each County in New Jersey that lived in rental housing. Table 7 presents the data extracted from that Census report.

Table 6
Distribution of Expenditures for
a Middle Income Family

County	Total Budget	Non-Housing	Non-Housing Percent
Atlantic	25,407	13,418	69.66
Bergen	29,540	14,273	67.99
Burlington	26,567	14,039	71.41
Camden	26,567	14,039	71.41
Cape May	25,407	13,418	69.66
Cumberland	25,407	13,418	69.66
Essex	29,540	14,273	67.99
Gloucester	26,567	14,039	71.41
Hudson	29,540	14,273	67.99
Hunterdon	25,407	13,418	69.66
Mercer	25,407	13,418	69.66
Middlesex	29,540	14,273	67.99
Monmouth	25,407	13,418	69.66
Morris	29,540	14,273	67.99
Ocean	25,407	13,418	69.66
Passaic	29,540	14,273	67.99
Salem	25,407	13,418	69.66
Somerset	29,540	14,273	67.99
Sussex	25,407	13,418	69.66
Union	29,540	14,273	67.99
Warren	25,407	13,418	66.66

Source: New Jersey Economic Indicators Number 216
June 9, 1982, p. 20

Table 7
New Jersey Rental Statistics

County	Total Population	Population Living in Rental Property	Rental Percentage
Atlantic	191,430	59,573	31.1
Bergen	836,926	219,490	26.2
Burlington	346,024	72,876	21.1
Camden	446,194	110,510	23.7
Cape May	79,687	19,578	24.6
Cumberland	128,377	38,429	29.9
Essex	835,905	435,175	52.1
Gloucester	197,230	37,203	18.9
Hudson	551,113	359,057	65.2
Hunterdon	85,050	15,334	18.0
Mercer	292,583	85,181	29.1
Middlesex	575,745	147,119	25.6
Monmouth	493,109	114,945	23.3
Morris	398,290	76,647	19.2
Ocean	342,842	54,974	16.0
Passaic	439,886	180,860	41.1
Salem	63,705	15,666	24.6
Somerset	198,376	39,911	20.1
Sussex	114,686	17,805	15.5
Union	497,772	153,632	30.9
Warren	83,287	21,354	25.6
New Jersey	7,218,217	2,275,319	31.5

Source: Bureau of the Census, U.S. Department of Commerce
Gross Rent and Monthly Owner Housing Costs, 1980 Census.

The average monthly rental price by County was also found in a 1980 Census document, this one entitled "Gross Rent and Monthly Owner Housing Costs" (Bureau of the Census, 1982). Table 8 presents the mean rental by county.

The 1980 data were not adjusted for inflation in order to understate the variable in the total estimated economic impact.

Substitute for the Retail Gravity Model

The use of the retail gravity model had been one of the most troublesome aspects of estimating economic impact for community college officials. A substitute was developed by the following process which utilized two sources of information:

1. The Literature Review reported in Chapter Two revealed that the top percentages of local expenditures by an individual were in the 75 to 77 percent range. For the purposes of understatement of the variable in the economic impact estimate, the highest in-county expenditure percentage to be used in the project was established at 75 percent.
2. The 1981 estimated total retail sales volume, as presented in the July 1982 edition of Sales and Marketing Management Magazine, was reviewed. The retail sales volume is an indicator of the wealth and diversity of a County's economic

Table 8
Mean Rent by New Jersey County

<u>County</u>	<u>Mean</u>
Atlantic	266
Bergen	356
Burlington	292
Camden	254
Cape May	282
Cumberland	241
Essex	252
Gloucester	271
Hudson	232
Hunterdon	338
Mercer	276
Middlesex	308
Monmouth	291
Morris	353
Ocean	311
Passaic	270
Salem	236
Somerset	340
Sussex	329
Union	283
Warren	278
New Jersey	278

Source: Bureau of the Census, U.S. Department of Commerce
Gross Rent and Monthly Owner Housing Costs, 1980 Census.

base. A lower sales volume may indicate that the economic base is not as developed as the base in other counties. A lower sales volume also may indicate that there is a great deal of sales "leakage" to neighboring counties with more diversified economic bases.

3. Comparative income measures were reviewed, as presented in Table 9.
4. In-county expenditure percentages were arbitrarily assigned to all counties as per their retail sales volume. Counties with less than \$1 billion in sales were assigned 60 percent; counties with \$1 billion to \$2 billion in sales were assigned 65 percent; counties with \$2 billion to \$3 billion in sales were assigned 70 percent; and counties with sales over \$3 billion, and the State of New Jersey, were assigned 75 percent. Table 10 displays the data used for the assignment of percentages. The data were not adjusted for inflation in order to further understate the variable.

The Pilot Project

Business offices at three community colleges, Brookdale, Passaic and Salem, agreed to complete a pilot survey to determine the appropriateness of questions, availability of data, and ease of

Table 9
Comparative Incomes by County

County	1980 Per Capita Actual Income	1980 Household Income	1980 Families Income	1981 Estimated Buying Income (000)	1981 Median Household Estimated Buying Income
Atlantic	9,256	19,310	22,405	1,782,066	20,831
Bergen	12,750	28,596	32,348	10,715,006	31,333
Burlington	10,001	23,548	25,608	3,467,831	24,998
Camden	10,085	21,006	23,626	4,500,706	24,883
Cape May	8,908	17,705	20,686	774,034	17,746
Cumberland	8,484	17,879	19,977	1,018,765	20,473
Essex	9,532	21,102	24,513	8,360,690	23,274
Gloucester	8,985	21,157	23,214	1,680,227	23,435
Hudson	9,317	17,166	19,856	4,754,066	20,605
Hunterdon	12,234	27,979	30,796	900,753	26,996
Mercer	9,077	23,097	26,233	3,179,853	26,086
Monmouth	10,715	24,990	28,315	5,240,073	26,044
Morris	12,873	30,709	33,238	4,840,406	32,158
Ocean	9,133	18,806	21,129	784,358	17,983
Passaic	9,298	20,861	23,610	4,128,752	24,207
Salem	9,005	19,279	21,496	527,814	21,931
Somerset	13,040	30,279	33,385	2,483,479	32,605
Sussex	11,355	24,197	26,031	1,079,448	24,726
Union	11,250	25,396	28,878	5,868,169	29,422
Warren	9,525	21,337	23,914	771,556	23,387

Source: Bureau of the Census, U. S. Department of Commerce and
Sales and Marketing Management Magazine.

Table 10
Estimated Total 1981 Retail Sales by County

County	Estimated 1981 Retail Sales
Atlantic	1,099,053
Bergen	4,888,801
Burlington	1,591,522
Camden	2,165,139
Cape May	562,549
Cumberland	600,192
Essex	3,074,332
Gloucester	1,043,851
Hudson	1,764,959
Hunterdon	409,113
Mercer	1,486,912
Middlesex	2,676,809
Monmouth	2,274,735
Morris	2,184,363
Ocean	1,703,051
Passaic	2,140,876
Salem	201,854
Somerset	1,007,376
Sussex	407,181
Union	2,344,023
Warren	367,161
Total	33,994,652

Source: Sales and Marketing Management Magazine,

completion. They were sent the pilot survey on November 16, 1982 and all three had returned the surveys by December 3, 1982. The following information about the survey was received during the pilot phase of the project:

1. The information requested was readily available.
2. The calculations were understandable.
3. The completion of the survey took two hours once the information had been gathered.
4. The survey instrument should be revised so that the twelve data elements are reported first, the calculations conducted second, and the economic impact estimated third.

Several editorial comments were also offered by the respondents.

The Survey

The final survey instrument that was distributed to the community colleges was a research tool that met the objections to the Caffrey-Isaacs model. It did not require a survey of staff and students. It did not include models judged to be inappropriate for community colleges. It did not use the retail gravity model. It was a survey that could be completed quickly with information that was readily available.

The final survey was distributed to all colleges on December 7, 1982. Seventeen responses were received by February 14, 1983.

An example of the survey instrument is included in this report in Appendix A.

Determination of the Multiplier

Appropriate multipliers had to be developed for each county and for the State of New Jersey. The total impact of expenditures is calculated by applying the multiplier to the total college related local expenditures. Economists used this "multiplier effect" to measure the flow of dollars as they are respent within a local economy. A state has a more varied economic base, and, consequently fewer dollars "leak" out to other areas. Therefore, a statewide multiplier is usually larger than a county multiplier.

The Caffrey and Isaacs study suggested using multiplier values for local impact studies of between 1.9 and 2.5. The range of multipliers used in the case studies reviewed in Chapter Two was 1.2 to 3.0. The range of state multipliers in the case studies reviewed was 2.0 to 4.0.

The magnitude of any multiplier-income, employment, etc. - varies among localities at any point in time, as well as over a period of time for any one locality. It must be emphasized that the multiplier effects can only be statistically estimated, not traced directly. A multiplier of 2.0 appears to be an average one among those computed for differing geographic regions. In addition these figures vary according to the self-sufficiency of the locale for replacement of goods and services. There did not appear to be sufficient empirical

evidence to justify local multipliers at the upper end of the range.

The Project Advisory Committee was presented with two options for the County multipliers. First a multiplier was developed for each County utilizing a methodology first used in the statewide study of Maryland Community Colleges (Linthicum, 1978). The results of this calculation are reported in Table 11.

Second, the committees were offered the option of using 2.0 for all Counties and 2.5 for the State. The rationale for this option was that these multipliers represented conservative estimates at the lower end of the ranges for localities and for states.

After much deliberation, each committee agreed to use the 2.0 county and 2.5 state multipliers. The committees felt that the multipliers were conservative and would understate the sector's economic impact. The Research and Planning Committee of the Council of County Colleges also discussed the potential political ramifications that might occur if the use of the diverse and lower multipliers produced dramatically different data for each county. The choice of 2.0 and 2.5 was as much a political as a research decision.

The Research Questions

This major applied research project had dealt with three research questions that were first discussed in Chapter One and then reviewed at the beginning of this chapter. The implementation of the statewide

Table 11
Suggested Multipliers

<u>County</u>	<u>Multiplier</u>
Atlantic	1.3
Bergen	1.5
Burlington	1.3
Camden	1.3
Cape May	1.3
Cumberland	1.3
Essex	1.5
Gloucester	1.3
Hudson	1.3
Hunterdon	1.2
Mercer	1.3
Middlesex	1.3
Monmouth	1.3
Morris	1.3
Ocean	1.3
Passaic	1.3
Salem	1.2
Somerset	1.3
Sussex	1.3
Union	1.3
Warren	1.2

economic impact survey was an attempt to produce findings that would address the three research questions. Data relevant to each question are presented in the following pages.

Brookdale's Economic Impact

The first research question was: What economic impact does Brookdale Community College have on Monmouth County? Utilizing the project survey developed as described in this report, officials at Brookdale were able to estimate the impact of the institution on its sponsor, Monmouth County, New Jersey, in Fiscal Year 1982.

Four Brookdale offices assisted in the completion of the project: Research and Development, Business Services, Student Activities, and Financial Aid. The results were as follows:

Total in-County expenditures by the college	\$ 4,041,634
Total employee expenditures in-County	\$ 3,912,109
Total student expenditures in-County	\$ 27,681,650
Total initial economic impact of the College on the County	\$ 35,635,593
Multiplier recommended by Caffrey and Isaacs	2.0
Total Estimated Economic Impact	\$ 71,271,086

In addition, using the Caffrey and Isaacs suggested formula of 70 jobs per \$1 million in direct expenditures, Brookdale's existence

resulted in an estimated 2,250 jobs in the local economy. When added to the full-time employment force of 560 at the College, Brookdale's estimated employment impact totalled 2,810 people.

A report entitled "The Direct Economic Impact of Brookdale Community College" was published and distributed to staff, students and trustees at Brookdale in early February 1983. A copy of this publication is included in this report as Appendix B.

Comparative Economic Impact

The second research question addressed by this major applied research project was: Is Brookdale's economic impact in Monmouth County different than the impact that other New Jersey community colleges have on their counties? An appropriate basis for comparison was suggested to be a comparative impact measure (I). This measure was produced by the division of the community college's estimated economic impact (E) by its county government's revenue contribution (CR). The equation is summarized as follows:

$$I = E \div CR$$

The results of the surveys completed by the seventeen community colleges that responded are presented in Tables 12, 13, 14, and 15. The source for the "County Share of Budget" column is the New Jersey State Department of Higher Education publication "Community College Sector -- Analyses of County Appropriations FY'81 - FY'83." The estimated local impact column is taken from the total first reported in Table 15 on page 76.

Table 12

Comparative College Expenditure Data

Colleges	Total College Expenditures	Percentage of College Expenditures Spent in County	Percentage of College Expenditures Spent in New Jersey	Total Student Activity Fees Expenditures
Atlantic	9,040,398	45	93.5	58,751
Bergen	3,314,592	73	90	192,716
Brookdale	7,181,972	54.2	77.5	274,919
Burlington	3,602,712	47.35	68.74	132,669
Camden	3,482,465	42	72	120,810
Cumberland	2,348,088	33.9	50.4	33,815
Essex	4,867,522	35	45	182,098
Gloucester	1,686,455	20	63	64,297
Hudson	5,071,982	64	97	101,847
Mercer	4,028,381	6.5	49.4	226,004
Middlesex	4,160,000	35	75	405,000
Morris	2,500,00	57	82	303,000
Ocean	5,047,451	37	87	120,592
Passaic	1,746,232	25	89	61,733
Salem	697,401	44	77	12,695
Somerset	4,467,000	5	80	185,000
Union	6,535,431	33	65	123,642

Table 13
Comparative College Employee Expenditure Data

Colleges	Total Number of College Employees			College Employees Who Live in County			College Employees Who Live in N.J.			Total Disposable Income Available to College Employees
	Total	F-T	P-T	Total	F-T	P-T	Total	F-T	P-T	
Atlantic	396	297	99	304	228	76	391	293	98	4,037,022
Bergen	1252	685	567	966	556	410	1166	630	536	9,184,692
Brookdale	1604	560	1044	1492	516	976	1595	553	1042	7,684,231
Burlington	1339	403	936	1172	347	825	1297	384	913	5,689,527
Camden	1190	305	885	713	183	530	1121	283	838	5,435,882
Cumberland	283	127	156	220	100	120	280	127	153	1,894,304
Essex	550	550	NA	373	373	NA	511	511	NA	8,507,858
Gloucester	310	179	131	232	134	98	308	178	130	2,567,958
Hudson	359	165	194	224	111	113	310	144	166	2,097,546
Mercer	608	412	196	434	295	139	536	364	172	7,046,537
Middlesex	1100	770	330	660	462	198	1065	750	315	9,927,900
Morris	873	484	389	698	388	311	855	474	381	8,000,000
Ocean	570	277	293	428	242	186	560	277	283	4,505,671
Passaic	817	270	547	456	163	293	754	254	500	3,046,066
Salem	175	86	89	109	53	56	151	74	77	1,013,595
Somerset	365	206	159	210	102	108	355	196	159	3,431,000
Union	631	429	222	404	272	132	630	416	214	6,220,197

Table 14
Comparable College Student Expenditure Data

Colleges	Total Number of Full-Time Students	Total Number of Part-Time Students	Average Annual College Related Expenditures by Full-Time Students	Average Annual College Related Expenditures by Part-Time Students
Atlantic	1,184	2,482	2,756	1,924
Bergen	4,207	7,304	2,570	2,250
Brookdale	3,500	8,205	2,822	2,110
Burlington	2,031	4,791	1,628	814
Camden	3,258	5,970	950	750
Cumberland	1,060	1,328	1,950	975
Essex	3,275	3,508	6,000	6,000
Gloucester	1,305	2,214	3,664	3,245
Hudson	1,591	1,277	2,000	1,750
Mercer	3,090	6,312	2,550	2,450
Middlesex	5,033	1,572	2,050	1,400
Morris	4,466	7,400	3,215	1,100
Ocean	2,569	2,814	2,300	1,300
Passaic	1,668	1,560	2,100	1,050
Salem	707	535	2,310	1,260
Somerset	1,477	3,801	2,300	1,150
Union	3,742	5,081	3,340	3,090

Table 15

Comparative Local Economic Impact

Colleges	Expenditures by Colleges	Expenditures by Employees	Expenditures by Students	Initial Impact	Total Estimated Impact
Atlantic	5,914,447	1,670,669	8,038,472	15,623,583	31,247,176
Bergen	2,560,335	4,300,347	27,245,990	34,106,672	68,213,344
Brookdale	4,041,634	3,912,109	27,681,850	35,635,593	71,271,086
Burlington	1,768,703	2,683,934	7,206,342	11,658,979	23,317,958
Camden	1,513,375	1,987,056	7,197,600	10,698,031	21,396,062
Cumberland	807,498	708,734	3,361,800	4,878,032	9,756,064
Essex	1,262,406	3,672,997	20,349,000	25,284,403	50,568,806
Gloucester	350,150	1,012,278	10,066,100	11,428,528	22,857,056
Hudson	3,311,250	821,223	5,416,750	9,549,223	19,098,446
Mercer	276,535	2,644,196	23,343,900	26,254,631	52,529,262
Middlesex	1,597,760	3,465,535	20,918,450	25,981,685	51,963,370
Morris	1,675,000	4,951,238	19,801,945	26,428,183	52,856,366
Ocean	1,912,176	1,695,098	9,566,900	13,174,174	26,348,348
Passaic	451,991	1,123,547	5,140,800	6,716,338	13,432,676
Salem	315,566	338,388	2,307,270	2,961,224	5,922,448
Somerset	232,000	1,053,232	7,768,000	9,053,232	18,106,464
Union	2,197,510	2,245,237	14,099,285	18,542,032	37,084,064

The answer to the specific research question, "Is Brookdale's economic impact in Monmouth County different than the impact that other New Jersey community colleges have on their counties?" is answered in Table 16. That table presents the total estimated local impact, the local sponsor's share of the budget and the comparative impact measure.

Brookdale's economic impact is different, as indicated in Table 16. The comparative impact measures ranged from a low of 4.75 to a high of 15.99 with the mean impact measure being 9.86.

The Economic Impact of the System on New Jersey

The third research question addressed by this major applied research project was: What is the economic impact of the community college system on the State of New Jersey?

Seventeen of New Jersey's community colleges participated in the project. The combined economic impact of the sector on the State of New Jersey is detailed as follows:

Total New Jersey expenditures by the colleges	\$ 54,813,718.00
Total employee expenditures in New Jersey	51,691,526.00
Total student expenditures in New Jersey	222,316,699.00
Total initial economic impact of the colleges on the County	328,821,943.00
Multiplier recommended by Caffrey and Isaacs	2.5
Total Estimated Economic Impact	\$822,054,857.50

Table 16
Comparative Impact Measures

Colleges	County Share of Budget	Estimated Local Impact	Comparative Impact Measure
Atlantic	2, 586,507	31,247,176	12.08
Bergen	6,675,000	68,213,344	10.22
Brookdale	5,381,327	71,271,086	13.24
Burlington	4,001,100	23,317,958	5.83
Camden	4,501,081	21,396,962	4.75
Cumberland	997,956	9,756,064	9.77
Essex	6,751,194	50,568,806	7.49
Gloucester	2,018,023	22,857,056	11.33
Hudson	1,193,752	19,098,446	15.99
Mercer	4,836,000	52,529,262	10.86
Middlesex	6,028,000	51,963,370	8.62
Morris	4,693,228	52,856,366	11.26
Ocean	2,933,350	26,348,348	8.98
Passaic	2,697,000	13,432,676	4.98
Salem	604,900	5,922,448	9.79
Somerset	2,014,648	18,106,464	8.99
Union	2,753,230	37,084,064	13.46

Table 17

Direct Economic Impact of Community Colleges on New Jersey

Colleges	College Expenditures in New Jersey	Employee Expenditures in New Jersey	Total College and Employee Expenditures	Student Expenditures in New Jersey	Total Direct Expenditures
Atlantic	8,452,772	2,350,547	10,803,319	8,038,472	18,841,791
Bergen	2,983,133	5,119,202	8,102,335	27,245,990	35,348,325
Brookdale	5,566,028	4,127,062	9,693,090	27,681,850	37,374,940
Burlington	2,476,504	3,136,123	5,612,627	7,206,342	12,818,969
Camden	2,507,375	2,881,618	5,388,993	7,197,600	12,586,593
Cumberland	1,183,436	1,076,030	2,259,466	3,361,800	5,621,266
Essex	4,137,394	4,821,792	8,959,186	20,349,000	29,308,186
Gloucester	1,062,467	1,438,821	2,501,288	10,066,100	12,567,388
Hudson	4,919,822	1,197,349	6,117,171	5,416,750	11,533,921
Mercer	1,990,020	3,566,807	5,556,827	23,343,900	28,900,727
Middlesex	3,120,000	5,849,618	8,969,618	20,918,450	29,888,068
Morris	2,050,000	5,981,458	8,031,458	22,608,190	30,099,648
Ocean	4,391,282	2,465,746	6,857,028	9,566,900	16,423,928
Passaic	1,609,088	1,765,593	3,374,681	5,140,800	8,515,481
Salem	542,368	502,970	1,045,338	2,307,270	3,352,608
Somerset	3,574,000	1,877,538	5,451,538	7,768,000	13,219,538
Union	4,298,029	3,533,252	7,781,281	14,099,283	21,880,566
	54,813,718	51,691,526	106,505,244	222,316,699	328,821,943

The State of New Jersey received an estimated economic impact of \$822 million on an initial investment of \$52 million in Fiscal Year 1982. The return of 15 to 1 is similar to the impacts estimated by studies of community college systems in Virginia, Maryland, Washington, Illinois and Michigan.

In terms of employment, the community colleges employed 6,205 people on a full-time basis and, by virtue of their direct expenditures of over \$300 million, created another 21,000 full-time jobs in New Jersey.

The estimated impacts of each of the seventeen community colleges that participated in the study are detailed in Table 17 that appears on page 79. Additionally, a publication entitled "A Study of the Economic Impact of the Community Colleges on the State of New Jersey" was published in early March, 1983. Copies of this report were distributed to presidents, business officers, research administrators, public relations personnel, and trustees at all New Jersey community colleges. A copy of the publication is included in this report as Appendix C.

Utilization of Results

The results of this major applied research project were to be used in two levels; local and statewide. Specifically, the project was designed to enable the following two activities to occur:

1. Each community college that responded to the survey was able to provide its local economic impact data to its county government as part of the local Fiscal Year 1984 budget process.
2. A statewide economic impact statement was to be presented to the Joint Appropriations Committee of the State Legislature as part of the State of New Jersey Fiscal Year 1984 budget process.

Local Utilization

At the request of the Project Advisory Committee, a "Utilization of Economic Impact Survey" questionnaires were distributed to the seventeen respondents. The questionnaire asked if the economic impact survey information was used for the following purposes:

1. Written and/or oral testimony regarding Fiscal Year county share of college budget.
2. Internal newsletter or other internal communications.
3. External press release or other external communication.

The results of the survey are presented in Table 18. Although all seventeen institutions had their economic impact information in time to use it to attempt to influence their sponsors regarding the Fiscal Year 1984 budget, only ten institutions chose to do so. Twelve institutions used the results in internal communications and eleven institutions used the results in external communications.

Table 18
Utilization of Economic Impact Survey Questionnaire Results

College	<u>Utilization</u>		
	1. Written/oral testimony - county share of college budget	2. Internal news-letter or other internal communications	3. External press release or external communications
Atlantic	Yes	Yes	Yes
Bergen	Yes	Yes	Yes
Brookdale	Yes	Yes	Yes
Burlington	No	No	No
Camden	Yes	Yes	Yes
Cumberland	No	No	No
Essex	Yes	Yes	Yes
Gloucester	Yes	Yes	Yes
Hudson	Yes	Yes	Yes
Mercer	No	No	No
Middlesex	No	No	No
Morris	Yes	Yes	No
Ocean	Yes	Yes	Yes
Passaic	No	No	No
Salem	No	Yes	Yes
Somerset	No	Yes	Yes
Union	Yes	Yes	Yes

Source: Survey of Survey Respondents, February 1983

Statewide Utilization

The Statewide data presented earlier in Table 17 on page 79 were utilized in several ways.

1. Each member of the State Legislature's Joint Appropriations Committee received a position paper entitled "The Economic Impact of New Jersey's Community Colleges: An Executive Summary."
2. Dr. B. A. Barringer, President of Brookdale Community College and chairperson of the Economic Development Committee of the Council of County Colleges, stressed the economic impact of the sector in his testimony on behalf of the Council to the State Legislature's Joint Appropriations Committee on March 24, 1983.

Figures 7 and 8 on pages 84 and 85 are copies of the graphics utilized to summarize the economic impact of the community college sector on the State of New Jersey.

The Handbook

A secondary goal of this major applied research project was the production of a Handbook to assist community college personnel in the production of future economic impact statements. As the project progressed, problems with the implementation of economic impact surveys, as reported by respondents, were noted. The

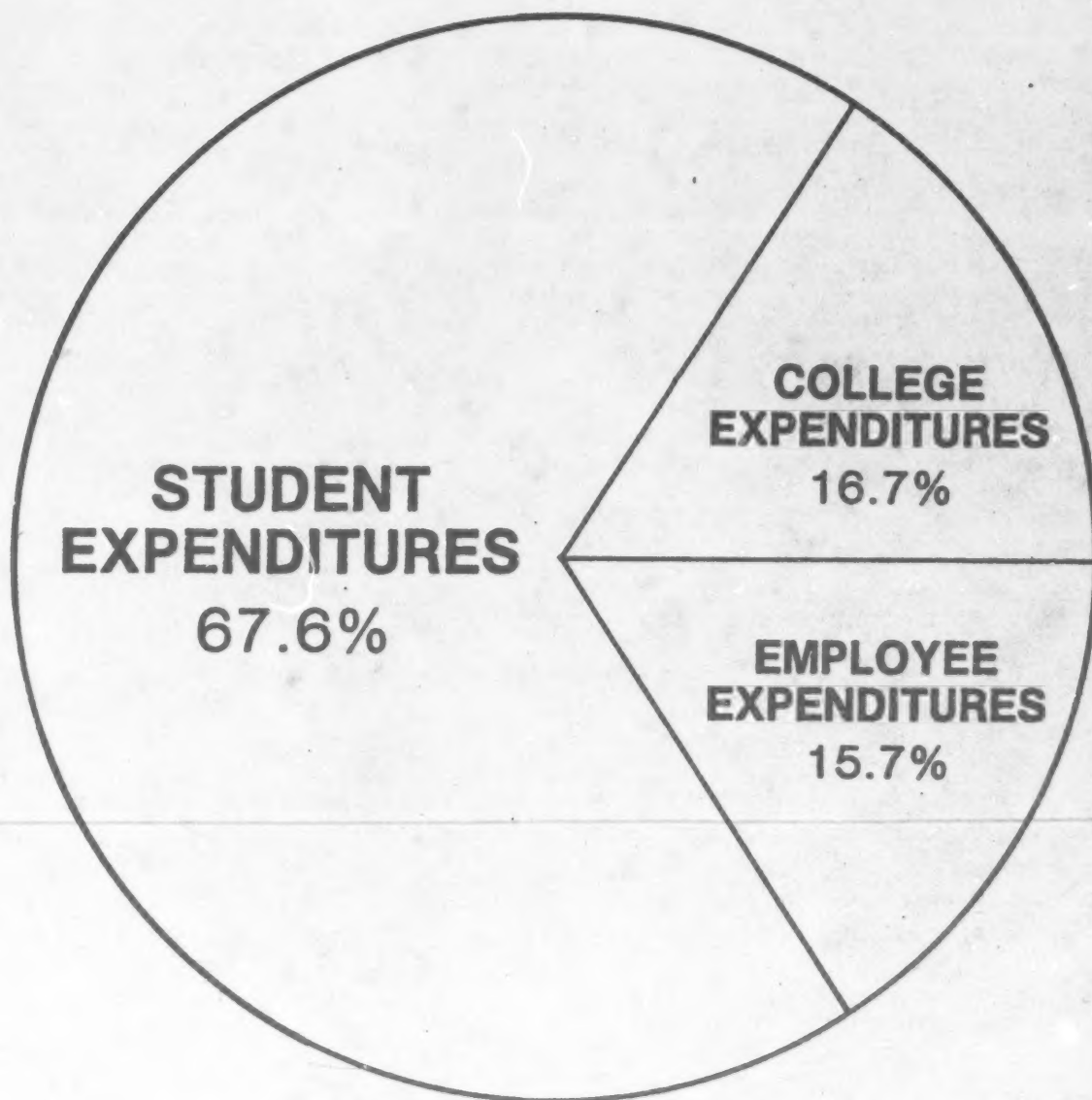


Figure 7

**Percentage Distribution of
Direct Impact of Community Colleges
Spending on New Jersey**

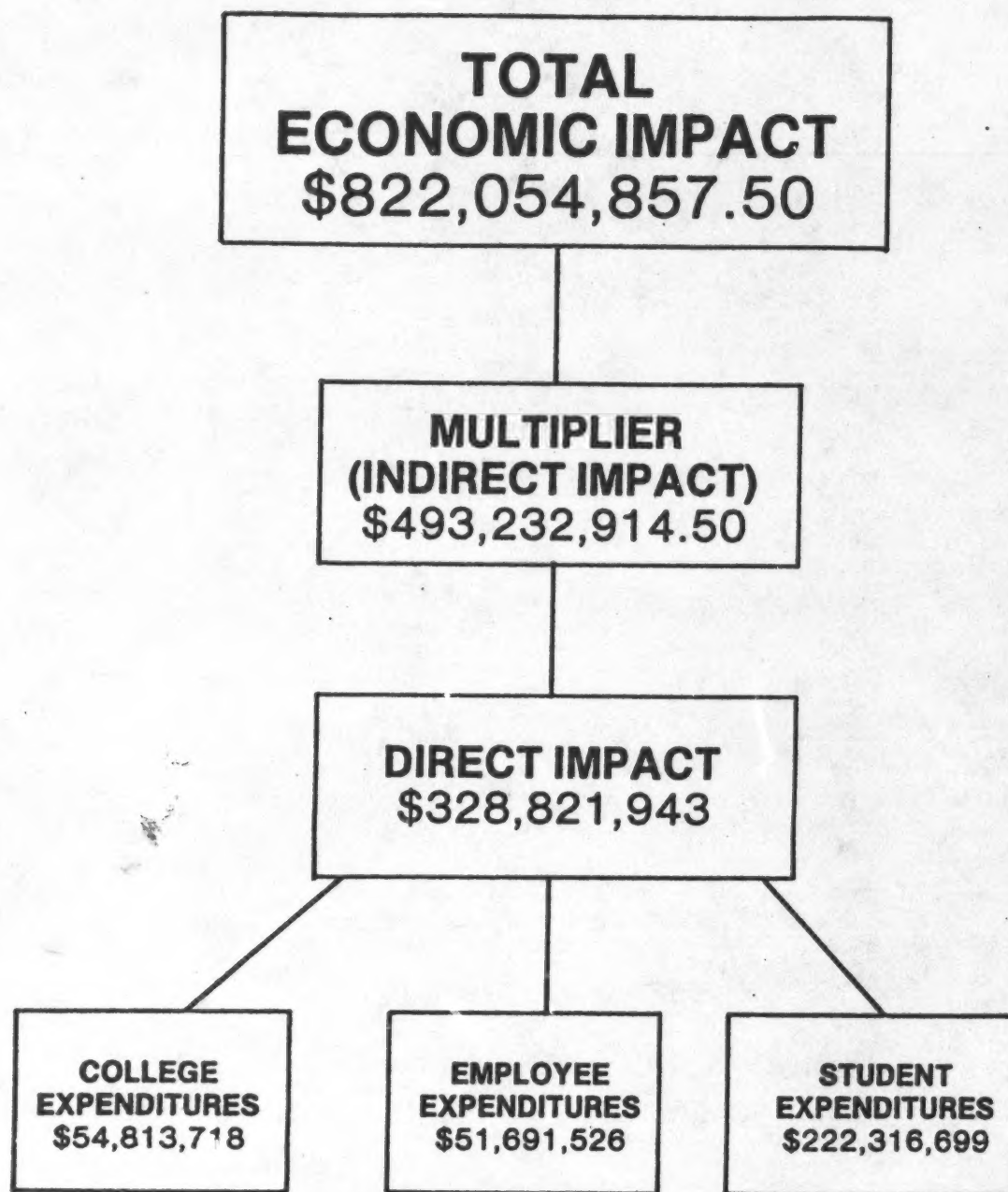


Figure 8

**Total Economic Impact
of the Community Colleges
on New Jersey**

Handbook produced was an attempt to: Answer frequently asked questions; explain important concepts; offer a model survey instrument; and provide a comprehensive bibliography.

A draft of the Handbook was sent to the Project Advisory Committee and the Research and Planning Committee of the Council of County Colleges on March 11, 1983. All recommendations received were incorporated in the final edition which was distributed to presidents, business officers and research administrators on April 11, 1983.

A copy of the Handbook is included in this report as Appendix D.

Evaluation of the Project

This major applied research project's effectiveness was to be measured by the production of three products according to a timetable contained in Figure 6 on page 37.

1. A survey for the calculation of local economic impact statements was to be developed and distributed, with guidelines for implementation by early January, 1983. The survey was developed and distributed by December 7, 1982.

2. A statewide economic impact statement was to be developed and presented to appropriate officials for use before the State Legislature's Joint Appropriations Committee by early April, 1983. The statewide report was developed and distributed by March 29, 1983. The report was utilized as part of the community college's testimony before the Joint Appropriations Committee on March 24, 1983.

3. A Handbook that will serve as a guide for the calculation of local economic impact statements was to be produced by mid-June, 1983. The Handbook was produced and distributed by April 11, 1983.

The entire major applied research project was evaluated by the community college presidents, chief business officers, research administrators, Research and Planning Committee of the Council and the Project Advisory Committee. The members of each group were asked to complete a questionnaire rating the effectiveness of the following aspects of the project (Results are presented in Table 19):

1. An appropriate format was followed.
2. The nature of the problem was precisely and clearly stated.
3. The background section established a reasonable conceptual base for the Project.
4. Procedures were sufficiently and clearly delineated to permit replication.
5. Limitations and assumptions were noted.
6. A definition of terms section clarified potentially ambiguous concepts.
7. Results were clearly and concisely stated in a descriptive manner.
8. Implications of the Project were clearly stated and derived from the results.
9. Overall, the Project was conducted well.

Table 19

Ratings of Respondents to
Questionnaire on Project Effectiveness

Respondent Ratings			
Project Component	Most Satisfactory	Very Satisfactory	Mean Rating
1. An appropriate format was followed.	7	3	4.7
2. The nature of the problem was precisely and clearly stated.	8	2	4.8
3. The background section established a reasonable conceptual base for the project.	6	4	4.6
4. Procedures were sufficiently and clearly delineated to permit replication.	7	3	4.7
5. Limitations and assumptions were noted.	2	8	4.2
6. A definition of terms section clarified potentially ambiguous concepts.	4	6	4.4
7. Results were clearly and concisely stated in a descriptive manner.	6	4	4.6
8. Implications of the Project were clearly stated and derived from the results.	4	6	4.4
9. Overall, the Project was conducted well.	6	4	4.6

The respondents were asked to rate each aspect according to a five point scale as per the following:

- 5 = Most Satisfactory
- 4 = Very Satisfactory
- 3 = Satisfactory
- 2 = Unsatisfactory
- 1 = Very Unsatisfactory
- 0 = No opinion

The results of the questionnaire on effectiveness are printed in Table 19, on page 88.

All ten individuals who were asked to rate the effectiveness of the project, completed and returned the questionnaire. It is most important to note that all ratings were in the 4 to 5 range, demonstrating the very satisfactory to most satisfactory opinion of all respondents regarding all aspects of the project.

Specifically, the respondents rated the project's statement of the problem the highest with this aspect of the project receiving a mean rating of 4.8. The format and procedures received mean ratings of 4.7. The background, results and overall project received mean ratings of 4.6. The definition of terms and implications received mean ratings of 4.4. The limitations and assumptions received a mean rating of 4.2.

CHAPTER FIVE

Interpretation, Conclusions and Recommendations

This project did have implications beyond the successful attainment of the intended outcomes. These implications have been discussed in this chapter. This chapter has subsections: First, the results of the local and state studies have been interpreted; second, the conclusions that may be drawn from the results and the products have been discussed, and third, recommendations for future practice have been made.

Interpretation of Results

Chapter Four presented the Results of the project in six categories. These same six categories have been used to interpret the results:

1. Development of the Survey
2. Determination of the Multiplier
3. The Research Questions
4. Utilization of Results
5. Production of a Handbook
6. Evaluation of the Project

These six areas are discussed in terms of their relative success and/or the problems that developed in their completion.

Development of the Survey

A survey alternative to the dominant Caffrey and Isaacs models was developed and implemented. The survey enabled the economic impact estimator to: Avoid using most of the Caffrey and Isaac's elements; avoid using a staff and student expenditure survey; and , avoid using the retail gravity model. The survey was also relatively easy to complete and based entirely on information available at the colleges.

The implementation of the survey did reveal several problems with definitions of terms that were addressed later in the publication of the Handbook. The three most frequent problems as reported by respondents were: Defining the nature of college expenditures; deciding what amount to use for a student budget; and defining part-time employment.

Determination of the Multiplier

Two multipliers, 2.0 for counties and 2.5 for the state, were chosen by the Project Advisory Committee and the Research and Planning Committee. Several members of the Presidents' Association expressed concern that 2.0 was too low for counties. In fact, the 2.0 multiplier might be the only slightly liberal estimate in the Project. The other option given the two committees was a set of multipliers for each county that were in every case significantly lower than 2.0.

New Jersey's economy is greatly impacted by the fact that it is wedged between two of the country's larger retail markets, New York and Philadelphia. There is, in all probability, a great deal of economic "leakage", especially from counties closest to the two cities. Consequently, the 2.0 multiplier is defensible on the basis that it represents a nationally recognized standard multiplier for geographic areas smaller than a state. The utilization of a higher multiplier for the counties might have seriously eroded the understatement that every other measure gave to the study.

The Research Questions

This major applied research project had three research questions each of which have been answered by utilizing the data produced by the survey especially developed for the project.

First, what economic impact does Brookdale Community College have on Monmouth County? The direct answer is that the total estimated economic impact is \$71,271,086 and 2,810 jobs. The estimate takes on added significance when the estimate is compared to the institution's Fiscal Year 1982 budget of \$17,543,454.

A rule of thumb estimate of the economic impact of a college on its local environs, based on the review of case studies reported in Chapter Two, is that the direct impact is approximately twice the budget of the college. This is the case with Brookdale. The initial estimated economic impact of the college on the County is \$35,635,593, compared to an operating budget of \$17,543,454.

Second, is Brookdale's economic impact on Monmouth County different than the impact that other New Jersey community colleges have on their counties? The simple answer is yes, but the reasons for the affirmative response are interesting. Brookdale has the largest economic impact because of several factors: A large student body, a higher percentage of in-county expenditures compared to institutions of similar size; a higher percentage of in-county staff than institutions of similar size.

Yet Brookdale did not have the largest comparative impact measure. Three smaller institutions, Union, Hudson and Atlantic had greater measures.

Third, what is the economic impact of the community college system on the State of New Jersey? The answer is: A significant one. The seventeen respondents contribute \$822,054,857.50 to the State's economic health. They also contribute 27,205 jobs. The results of New Jersey's statewide impact are favorable when compared to similar studies done for community college sectors in Virginia, Washington, Illinois and Michigan. The comparative impact measure for the State is 14.63 based on dividing the impact by the State's contribution of \$56,187,500 in Fiscal Year 1982. Only the Washington study revealed a higher measure, probably because the state has much less leakage than the other states that have been the subjects of studies.

Utilization of Results

One of the few disappointments of the project was the fact that only ten of the seventeen respondents chose to use the survey results for one of their intended purposes: Attempting to influence local Boards of Chosen Freeholders to increase the county shares to the college budget. Only a few more institutions used the studies internally or externally for public relations purposes. The most disconcerting fact was that five institutions, after having fully participated in the project, refused to use the survey information at all.

The disappointing local use of the information produced by the study was offset by the excellent utilization of the statewide information. The stated intention to use the data in connection with the sector's Fiscal Year 1984 testimony before the State Legislature's Joint Appropriations Committee was achieved. It is still too early to know if the data will help the sector gain increased appropriations.

The Handbook

The Handbook was produced as an intended outcome of this major applied research project. The Handbook has been distributed to officials at each community college in New Jersey so that they may have assistance as they continue to estimate the economic impact of their colleges on their counties.

The Handbook included a comprehensive bibliography, a product of this project's proposal, and model graphics for the presentation of impact data. Since the Handbook was distributed in early April, it is too early to tell if it will be utilized by the officials and/or adapted in the future on the basis of new findings from new impact studies.

Evaluation of the Project

The project was judged to be highly effective by the respondents to an evaluation questionnaire. All the responses were favorable on all the items. The evaluation reflects positively on a strict adherence to an important time frame throughout the project. All of the proposed products were produced early and in a format that was judged to be very usable by appropriate officials.

Conclusions

This project was significant in that it is one of the few economic impact studies that have included an entire community college sector. It is the first time a group of New Jersey colleges has been researched in the same economic impact study, thus producing comparative data. Beyond these points of significance that deal with the rarity of this kind of research enterprise, there are some additional points of statistical importance.

1. The impact of the community college system on the State of New Jersey is impressive. The sector contributes over \$800 million to the State's economy on an initial investment of \$56 million.

2. In Fiscal Year 1982, with unemployment in New Jersey over 9 percent, the community college sector contributed 27,000 full-time jobs to the state's economy, only 6,000 of which were funded by the colleges.

3. The average cost per job, calculated by dividing the number of jobs created by the sector by the State's share of the sector's budget, is less than \$2000.

4. Each of the community colleges in New Jersey has a significant economic impact on its county, ranging from a low of \$5.9 million to a high of \$71 million.

5. Enrollment appears to be the single most important determinant of a community college. Table 14 on page 75 presents the enrollments of New Jersey's Community Colleges and the average annual expenditures by students. Table 15 presents the impact of enrollment in the column entitled "Expenditures by Students." The expenditures of the students at larger institutions (Bergen, Brookdale, and Mercer) are clearly the primary reason for the high total estimated impacts of the larger institutions.

Several conclusions regarding the Project's methodology can also be made:

1. The time sequence established in the project proposal was both appropriate and workable.

2. Alternatives to time consuming and complicated economic impact models, relying heavily on already available government data, can be developed.

3. The project's economic impact survey, requesting only twelve different pieces of information, was easy to complete and produced valuable information for college officials.

This major applied research project also produced all three of its intended products well ahead of schedule. Yet, five institutions decided not to use the data produced by their local economic impact survey in any way. This fact is the one disappointment in the project.

Recommendations

The recommendations that are made as a result of this major applied research project are divided into three categories: Those that relate to the Brookdale study; those that relate to the State-wide study; and those that relate to the project in general.

Brookdale

The estimated economic impact of Brookdale Community College is potentially very useful information. It is recommended that the estimate be utilized as follows:

1. A brochure, highlighting the economic impact of Brookdale on Monmouth County should be developed and distributed to business, labor and civic leaders.
2. The estimate should be given prominent mention in the President's annual report.

3. The estimate should be the basis of a speech that may be given by college officials to local civic, professional and business organizations.
4. The estimate should be revised each year as more recent data become available.

New Jersey

The estimated economic impact of New Jersey's community colleges is also potentially useful information. It is recommended that the estimate be utilized as follows:

1. The economic impact should be mentioned, if not highlighted, in the proposed sector wide publicity brochure.
2. The economic impact should be included in the sector's testimony to the State Legislature's joint appropriations committee regarding the FY1984 appropriations.
3. The economic impact should be mentioned in conversations with the Governor, the Governor's staff and other appropriate executive branch officials.
4. Press releases regarding the economic impact should be prepared and distributed to the major daily newspapers of New Jersey, New York City and Philadelphia.
5. A summary of this report should be prepared and sent to New Jersey's major business and trade associations and labor unions.

6. A summary of this report should also be shared with AACJC, ACCT, and The Chronicle of Higher Education.
7. The economic impact of New Jersey's community colleges should continue to be calculated at intervals as frequent as every other year.
8. Although the estimated impact of each institution is available, each institution should be kept anonymous when the report is condensed and shared with public officials. Differences in impact might be misunderstood by individuals unfamiliar with the intent of the project.
9. The results of the project should be reported in writing to the following New Jersey organizations:

Council of County Colleges
Research and Planning Committee of the Council
Legislative Committee of the Council
Economic Development Committee of the Council
Association of County Community College Presidents
Community College Association of Institutional
Researchers
County College Public Relations Officers

The Project

The completion of this major applied research project has not only contributed three finished products but has also led to several recommendations for future research:

1. The survey instrument developed for this project should be adapted for use in other states, implemented, and the results compared.

2. The comparative impact measure developed for this project should be applied to the previous economic impact studies and the results reported. A national mean comparative impact measure should be developed.
3. The alternative to the Retail Gravity Model developed for this project should be tested for reliability by comparing the results produced by the project survey to results produced by using the Retail Gravity Model at the same college.
4. A standard method for comparing the economic impacts of community colleges' systems on their states should be developed. The comparative impact measure developed for this project may be a point of departure for this proposed effort.
5. A simplified formula for developing an acceptable multiplier should be developed. Present methods involve too much guess work to effectively deal with the political ramifications of the size of the multiplier.

Although the project appears to have proved that conducting an economic impact study need not be a time consuming and cumbersome process, the completion of the recommended research projects would test the validity of both the survey instrument and the alternative to the Retail Gravity Model. The economic impact measurement model developed by this major applied research project, if found to be

reliable when compared to other more standard measurements, could then be widely disseminated for use by community college administrators not only in New Jersey but in other states as well.

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APPENDIX A

Direct Economic Impact Survey

DIRECT ECONOMIC IMPACT SURVEY

Part I. College Information

Item	Instructions
1. Total College Expenditures \$ _____	1. The source of information should be the end of fiscal year 1982 audit. This figure must exclude salaries, internal items and transfers and taxes.
2. Percentage of College expenditures, as reported in #1, spent in County _____ %	2. The source of this information is College Business Records. It may be computed as follows: a. Actual calculation of all in County purchases for a Fiscal Year. b. Review three different months total expenditures. Determine percentage spent in County.
3. Percentage of College expenditures, as reported in #1, spent in New Jersey _____ %	3. Use same method as in #2.
4. Total Student Activity Fees, Expenditures \$ _____	4. The source of this information should be the Student Activities office. The total should include inter-collegiate athletic expenditures.
5. Total number of College employees _____ <u>#</u> <u>%</u> 5a. Full-time _____ 5b. Part-time _____ 5c. Total _____	5. This information may be obtained from calendar year 1981 payroll records. (Use W-2 information or FY82 budget data.)

**Part I. College Information
(Continued)**

<u>Item</u>	<u>Instructions</u>
6. College employees who live in County _____ \$ % 6a. Full-time _____ _____ 6b. Part-time _____ _____ 6c. Total _____ _____	6. This information may be obtained by reviewing address information on payroll or in College directory. If part-time data is not readily available, use the full-time percentage. This figure should be developed at the same time as figure #7.
7. College employees who live in New Jersey _____ \$ % 7a. Full-time _____ _____ 7b. Part-time _____ _____ 7c. Total _____ _____	7. This information may be obtained by reviewing address information on payroll or in College directory. If part-time data is not readily available, use the full-time percentage. This figure should be developed at the same time as figure #6.
8. Total disposable income available to College employees \$ _____	8. The source of this information is College Business Records. The figure is money paid directly to staff and does not include taxes and retirement.
9. Total number of full-time students _____	9. This information is available from end of fiscal year audit. Use Fall 1981 audited data.

**Part I. College Information
(Continued)**

<u>Item</u>	<u>Instructions</u>
10. Total number of part-time students _____	10. This information is available from end of fiscal year audit. Use Fall 1981 audited data.
11. Average annual college related expenditures by full-time students _____	11. This information is available from the Financial Aid office. The figure should exclude tuition and fees.
12. Average annual college related expenditures by part-time students _____	12. This information is available from the Financial Aid office. The figure should exclude tuition and fees.

Part II. Project Calculations

Item	Instructions
13. Total Student Government expenditures spent in County \$ _____	13. This figure may be found by applying percentage computed in #2 to total reported in #4.
14. College expenditures spent in County \$ _____	14. This figure may be found by applying percentage computed in #2 to total reported in #1.
15. College expenditures spent in New Jersey \$ _____	15. This figure may be found by applying percentage computed in #3 to total reported in #1. The figure includes expenditures already calculated in #14.
16. Total Student Government expenditures spent in New Jersey \$ _____	16. This figure may be found by applying percentage computed in #3 to total reported in #4. This information includes expenditures already calculated in #13.
17. Total in County expenditures by the College \$ _____	17. This figure may be computed by adding #13 and #14.
18. Total in New Jersey expenditures by the College \$ _____	18. This figure may be computed by adding #15 and #16. The figure includes expenditures already calculated in #17.
19. Disposable income of in County employees spent in County on non-housing items \$ _____	19. This figure may be obtained as follows: Disposable Income #8 X Percentage of in County Staff #6 X Estimate of non-housing expenditures (Column A) X Estimate of in County expenditures (Column B)
20. Expenditures of out-of-County full-time employees spent in County on non-housing items \$ _____	20. This figure may be obtained as follows: Total number of out-of-County Full-time employees (5a - 6a) X \$1000.00

**Part II. Project Calculations
(Continued)**

<u>Item</u>	<u>Instructions</u>
21. Disposable Income of in New Jersey employees spent in New Jersey on non-housing items \$ _____	21. This figure may be obtained as follows: Disposable Income #8 X Percentage of in-New Jersey staff #7 X Estimate of non-housing expenditures (Column A) X Estimate of in-New Jersey expenditures (Column B)
22. Rental expenditures by full time college staff living in County \$ _____	22. This figure may be computed as follows: Total full-time staff living in- County X County Percentage Who Rent (Column C) X County Mean Rent (Column D) X 12
23. Rental expenditures by full-time college staff in other New Jersey counties \$ _____	23. This figure may be computed as follows: Total full-time staff living in other New Jersey counties 7a-6a X State Percentage Who Rent (Column C) X State Mean Rent (Column D) X 12
24. Total employee ex- penditures in County \$ _____	24. The total in-County employee expenditures may be computed as follows: #19 + #20 + #22
25. Total employee ex- penditures in New Jersey \$ _____	25. The total expenditures by employees in New Jersey may be computed as follows: #21 + #22 + 23

**Part II. Project Calculations
(Continued)**

<u>Item</u>	<u>Instructions</u>
26. Total expenditures by full-time students \$ _____	26. This figure is computed by the following method: #9 X #11
27. Total expenditures by part-time students \$ _____	27. This figure is computed by the following method: #10 X #12
28. Total expenditures by students \$ _____	28. This figure is computed by adding #26 and #27

Part III. Local Economic Impact

<u>Item</u>	<u>Instructions</u>
29. Total in-County expenditures by the College \$ _____	30. #17
30. Total employee expenditures in County \$ _____	30. #24
31. Total Student expenditures in-County \$ _____	31. #28
32. Total initial economic impact of the College on the County \$ _____	32. #29 + #30 + #31
33. Multiplier Effect	33. 2.0
34. Total Estimated Economic Impact \$ _____	34. #32 X #33

BIOGRAPHICAL INFORMATION

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BIOGRAPHICAL INFORMATION

Gordon Jeremiah Ryan

Gordon Jeremiah Ryan has been associated with Brookdale Community College since June of 1981. He has held a variety of administrative posts and is currently research and development officer.

Mr. Ryan is a graduate of Hamilton College, Clinton, New York, where he received a bachelor of arts degree with a major in government and minors in economics and speech. He has a masters of arts degree in organization and administration from Stanford University, Stanford, California and a master of science degree in higher education from the State University of New York at Albany.

In his current role, Mr. Ryan is responsible for Brookdale's research programs, including educational research, institutional research, program development, program evaluation, student evaluation and the college's center for Educational Research. He is also responsible for development activities including grants, governmental relations, public relations, community affairs, and the College's Foundation.

Prior to coming to Brookdale, Mr. Ryan served as the executive director of the Council of County Colleges of New Jersey. He has also served as a research associate for the Commission on Higher Education of the Middle States Association of Colleges and Schools

and as a staff associate of the Governor's Temporary Commission on Higher Education in New York. His previous campus positions include service as dean of academic services at Broome Community College, Binghamton, New York, and assistant to the president at Fulton-Montgomery Community College, Johnstown, New York.

Mr. Ryan participates in community activities through the Monmouth-Ocean Development Council, the Western Monmouth Chamber of Commerce, the Board of Directors of the United Way of Monmouth County, and as Treasurer of Planned Parenthood of Monmouth County. For the past two years he served as host of a public affairs segment on a weekly cable television program Line-Out produced by the staff and students of Brookdale.

Mr. Ryan is a member of the New Jersey's Council on Resource Development, Community College Association of Institutional Researchers, County College Public Relations Council, the Consortium on the Community College, and the Mid-Career Fellowship Program of Princeton University. He is also a member of the following national organizations: National Council on Resource Development; National Council on Community Relations; and the National Council on Research and Planning.

Mr. Ryan is a frequent lecturer on topics in research and development. He has also served as a guest lecturer at Teachers College Columbia University, Seton Hall University, and Princeton University. He has also been an adjunct instructor in political science at Fulton-Montgomery, Broome and Brookdale.

Mr. Ryan resides with his wife, Gail, the personnel officer of Opinion Research Corporation in Princeton, in Ewing, New Jersey.

MAJOR APPLIED RESEARCH PROJECT

SIGNATURE PAGE

MAJOR APPLIED RESEARCH PROJECT
SIGNATURE PAGE

I certify that I have read and am willing to sponsor this Major Applied Research Project submitted by Gordon Jeremiah Ryan. In my opinion it conforms to acceptable standards and is fully adequate in scope and quality, as a Major Applied Research Project for the degree of Doctor of Education at Nova University.

7-15-83
(date)

George F. Aker
George F. Aker
MARP Advisor

I certify that I have read this Major Applied Research Project and in my opinion it conforms to acceptable standards for a Major Applied Research Project for the degree of Doctor of Education at Nova University.

7/29/83
(date)

Peter K. Mills
Peter K. Mills
Local Professional Reader

This Major Applied Research Project was submitted to the Central Staff of the Center for Higher Education of Nova University and is acceptable as partial fulfillment of the requirements for the degree of Doctor of Education.

8/4/83
(date)

Phil De Turk
Phil De Turk
Central Staff Committee Member

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